



**Diane Roy**  
Vice President, Regulatory Affairs

**Gas Regulatory Affairs Correspondence**  
Email: [gas.regulatory.affairs@fortisbc.com](mailto:gas.regulatory.affairs@fortisbc.com)

**Electric Regulatory Affairs Correspondence**  
Email: [electricity.regulatory.affairs@fortisbc.com](mailto:electricity.regulatory.affairs@fortisbc.com)

**FortisBC**  
16705 Fraser Highway  
Surrey, B.C. V4N 0E8  
Tel: (604) 576-7349  
Cell: (604) 908-2790  
Fax: (604) 576-7074  
Email: [diane.roy@fortisbc.com](mailto:diane.roy@fortisbc.com)  
[www.fortisbc.com](http://www.fortisbc.com)

October 30, 2018

British Columbia Utilities Commission  
Suite 410, 900 Howe Street  
Vancouver, B.C.  
V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

**Re: FortisBC Inc. (FBC)**  
**Project No. 1598973**  
**2019-2022 Demand-Side Management (DSM) Expenditures Application (the Application)**  
**Response to the British Columbia Utilities Commission (BCUC) Information Request (IR) No. 1**

---

On August 2, 2018, FBC filed the Application referenced above. In accordance with BCUC Order G-179-18 setting out the Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCUC IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

**FORTISBC INC.**

***Original signed:***

Diane Roy

Attachments

cc (email only): Registered Parties



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 1

1	<b>Table of Contents</b>	<b>Page no.</b>
2	A. PORTFOLIO LEVEL ISSUES .....	2
3	B. ADDITIONAL APPROVALS SOUGHT .....	34
4	C. PROGRAM LEVEL ISSUES .....	49
5		

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 2

1     **A.     PORTFOLIO LEVEL ISSUES**

2     **1.0     Reference:     PORTFOLIO LEVEL ISSUES**

3                     **Exhibit B-1, pp. 1, 5, 14, 22; Appendix A, p. 2**

4                     **Consistency with Long Term Electricity Resource Plan (LTERP)**

5             On page 1 of Exhibit B-1, FortisBC Inc. (FBC) states:

6                     The LT DSM Plan [Long Term Demand Side Management Plan] was premised  
7                     on a ramp up in DSM spending and savings, beginning in 2021, that would offset  
8                     an average of 77 percent of FBC's forecast load growth annually over the  
9                     LTERP's planning horizon.

10             Table 1-1 shows that the proposed budget for the DSM Plan is \$7.7 million more, in  
11             total, than the pro-forma budget contemplated in the LT DSM Plan (inflation adjusted)  
12             and is expected to achieve an additional 18.7 GWh of electricity savings for this period.

13             On page 5 of Exhibit B-1, FBC states:

14                     The DSM measures included in the 2019-2022 DSM Plan are consistent with the  
15                     measures assessed and the benefit/cost methodology used in the 2016 LTERP  
16                     and LT DSM Plan.

17             On page 14 of Exhibit B-1, FBC states:

18                     Overall, the DSM Plan expenditures are 21 percent higher (at \$44.0 million) than  
19                     the pro-forma budgets provided in the 2016 LTERP (\$35.7 million inflation  
20                     adjusted). Over half (\$4.0 million) of the \$7.7 million increase is allocated to  
21                     lighting measures in the Industrial sector, largely to address agriculture process  
22                     lighting in the emergent cannabis industry. Other large increases are from the  
23                     Residential Customer Engagement Tool (\$1.1 million), the Demand Response  
24                     pilot (\$1.0 million), and the DSM tracking tool (\$0.6 million) under Supporting  
25                     Initiatives.

26             On page 22 of Exhibit B-1, FBC states:

27                     FBC's proposed DSM portfolio for 2019 to 2022 is cost-effective, with a TRC of  
28                     1.5, based on the methodology set out in section 4 of the DSM Regulation.

29             Table 1-1 of Appendix A to Exhibit B-1 indicates a portfolio level Total Resource Cost  
30             (TRC) benefit/cost ratio of 1.5 for the 2019-2022 DSM Plan and a portfolio level TRC  
31             benefit/cost ratio for the LT DSM Plan of 1.9.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 3

1.1 Please provide the annual percentage of FBC's forecast load growth that is expected to be offset by the 2019-2022 DSM Plan.

**Response:**

The following table shows the annual percentage of FBC's forecast gross energy load growth for 2019 through 2022 from the 2016 Long Term Electric Resource Plan (2016 LTERP) and the updated 2019 load growth forecast as presented in FBC's Annual Review for 2019 Rates (currently undergoing regulatory review) that is expected to be offset by the 2019-2022 DSM Plan.

Year	DSM Plan (GWh)	LTERP Forecast Load Growth (GWh)	% of LTERP	2019 Annual Review Forecast Load Growth (GWh)	% of 2019 Annual Review
2019	32.8	41.3	79%	57.4	57%
2020	32.3	38.0	85%		
2021	32.6	34.3	98%		
2022	33.3	42.3	79%		

Please note that due to a correction to the estimated savings in the Low Income program area, the total 2019-22 DSM Plan savings have increased. For further information, please refer to the errata filed concurrently with FBC's IR responses.

1.1.1 Please also provide a calculation that excludes load growth and energy savings from the cannabis industry that were not contemplated at the time of the LTERP.

**Response:**

The load growth and energy savings from the cannabis industry were not contemplated at the time that the 2016 LTERP was prepared. The following table shows the same information as in the response to BCUC IR 1.1.1 with estimated cannabis production facility savings excluded from the DSM savings.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 4

Year	DSM Plan without Cannabis (GWh)	LTERP Forecast Load Growth (GWh)	% of LTERP	2019 Annual Review Forecast Load Growth (GWh)	% of 2019 Annual Review
2019	26.8	41.3	65%	57.4	47%
2020	26.3	38.0	69%		
2021	26.6	34.3	77%		
2022	27.3	42.3	65%		

Please note that due to a correction to the estimated savings in the Low Income program area, the total 2019-22 DSM Plan savings have increased by 0.7 GWh. For further information, please refer to the errata filed concurrently with FBC's IR responses.

1.1.2 Please discuss any differences with the forecasted load growth offset contained in the LTERP.

**Response:**

As shown in the table presented in the response to BCUC IR 1.1.1, the forecast load growth offset for the 2019-2022 DSM Plan is higher than was presented in the 2016 LTERP including savings from cannabis facilities. Not including savings from cannabis facilities, the average load growth offset would be 69 percent over the 2019-2022 plan period which is slightly less than the 72 percent load growth offset shown in the 2016 LTERP for the period. In both cases the load growth offset, over the 2019-2022 DSM plan period, exceeds the CEA s. 2(b) target of 66% offset, established for BC Hydro. Although FBC is not obliged to meet the CEA target, it has done so on a planning basis.

Although the load growth offset has decreased slightly from the 2016 LTERP, the energy savings targets have been increased substantially (by 19.4 GWh) in response to the opportunities presented by the cannabis production facilities.

1.2 Please confirm that all measures that were included in the LT DSM Plan are included in the 2019-2022 DSM Plan.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 5

# **Response:**

This is not confirmed. The below table lists the measures that were included in the Conservation Potential Review (CPR) filed with the 2016 LT DSM Plan, but not included in the 2019-2022 DSM Plan. The CPR report filed in conjunction with the 2016 LT DSM Plan was based on economic potential; whereas, FBC uses market potential, not economic potential, as an input to its DSM planning because it represents the market opportunity as opposed to the higher level estimates of technical and economic potential. The market potential study was not complete when FBC filed the 2016 LT DSM Plan.

These measures were not incorporated into the 2019-2022 DSM Plan for many different reasons: they may not be applicable in FBC's service territory, have limited savings potential, or have limited applicability to DSM programs. For example, many of the industrial measures in the list are for types of facilities that do not exist in FBC's service territory, such as mechanical pulp and veneer. Measures that have relatively small energy savings potential are difficult to incorporate into DSM programs effectively. For example, duct insulation is less than 1% of the market potential. Finally, certain end uses, such as consumer electronics, are relatively complex to address and more effectively managed with regulation.

Measure List
Com   Tankless Electric Hot Water Heater, RET FortisBC Electric Southern Interior
Com   Tankless Electric Hot Water Heater, ROB FortisBC Electric Southern Interior
Com   Low-Flow Showerheads, Electric All All
Com   Faucet Aerators, Electric All All
Com   Refrigeration Waste Heat Recovery / Compressor Heat Recovery, Electric All All
Com   Duct Insulation, Electric All All
Com   Storage Tanks for Load/No Load Screw Compressors
Com   Occupant Behavior - Electric
Com   ENERGY STAR Server
Com   Server Virtualization
Com   Roof Deck Insulation All Utilities Southern Interior Electric
Com   Strip Curtains on Walk-ins (low and medium temp) All Utilities All Climate Zones
Ind   Vent Opt Elec S INT
Ind   Improved Fan Systems (RET)
Ind   Improved Fan Systems (NEW)
Ind   Efficient Pulp Screen (RET)
Ind   Cold Storage Retrofit (RET)
Ind   Cold Storage Retrofit (NEW)
Ind   Refrigerated Storage Tuneup

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 6

Measure List
Ind   Advanced Veneer Dryer - Electric (RET)
Ind   Advanced Veneer Dryer - Electric (NEW)
Ind   Pump Off Controllers
Ind   Enhanced Mechanical Pulping (RET)
Ind   Process Control Electric (RET)
Ind   Process Control Electric (NEW)
Ind   High Eff Flotation (RET)
Ind   High Eff Flotation (New)
Ind   High Eff Grinding (RET)
Ind   High Eff Grinding (New)
Ind   Energy Management - Electric (RET)
Ind   Energy Management - Electric (NEW)
Ind   High Efficiency Kilns - Electric (RET)
Ind   High Efficiency Kilns - Electric (NEW)
Ind   Conveyor Off Controllers
Ind   New LNG Plant
Ind   New O&G Plant
Res   Electric Tankless Water Heater
Res   Drain Water Heat Recovery (Elec DHW)
Res   Plug Lighting Controls
Res   Energy Star Display
Res   Energy Star Desktop PC
Res   Energy Star Television
Res   Battery Chargers
Res   Cooking Convection Ovens
Res   Elec Cooking Convection Ovens
Res   Induction Cook Tops
Res   Refrigerator Buy Back
Res   Attic Duct Insulation Elec -SI
Res   Crawlspace Duct Ins Elec -SI
Res   Central AC Replacement-SI
Res   Room AC Replacement-SI
Res   Home Energy Reports Elec -SI NEW
Res   Indoor Fluorescents T8

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 7

1.2.1 If not confirmed, please explain.

**Response:**

Please refer to the response to BCUC IR 1.1.2.

1.3 Please discuss if FBC was contemplating expenditures on Residential Customer Engagement Tool, the Demand Response (DR) pilot and the DSM tracking tool at the time of preparing the 2016 LTERP. Please explain why these costs were not included in the 2016 LTERP forecast.

**Response:**

The 2016 LT DSM Plan is not an expenditure schedule, as such it does not include detailed program listings, such as new initiatives, or the associated costing. FBC was contemplating expenditures on a Residential Customer Engagement Tool (or equivalent) when the 2016 LT DSM Plan was being prepared and included the costs in the 2017 and 2018 DSM expenditure filings. FBC was not actively planning the Demand Response (DR) pilot and the DSM tracking tool at the time of preparing the 2016 LTERP.

1.4 Please explain the main reasons for the differing TRC ratios in the 2019-2022 DSM Plan and the LT DSM Plan.

**Response:**

The TRC ratios in the 2019-2022 DSM Plan and the LT DSM Plan are prepared using different methodologies and assumptions. The main reason for the differing TRC ratios in the 2019-2022 DSM Plan and LT DSM Plan is the portfolio of measures used in the LT DSM Plan are from the CPR economic potential, which includes more cost effective energy savings potential than is achievable at the program level. The LT DSM Plan TRC ratio of 1.9 for the accepted High scenario used high-level cost assumptions and a portfolio of measures from the CPR economic potential over 20 years. In contrast, the 2019-2022 DSM Plan used program level information to prepare the expenditure filing for a TRC ratio of 1.5.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 8

**2.0 Reference: PORTFOLIO LEVEL ISSUES**

**Exhibit B-1, pp. 2, 19 to 21; Appendix B, pp. 14, 19, 20, 27;**

**2016 LTERP and LT DSM Plan proceeding, Exhibit B-11, Response to BCUC IR 79.1**

**Conservation Potential Review (CPR)**

On page 2 of Exhibit B-1, FBC states:

FBC uses the market potential estimated in its CPR as an input to the planning process. The market potential is an estimate of energy savings for a list of technologies that could be achieved over time. Broad assumptions about customer acceptance and adoption rates are made to estimate the potential. Market potential differs from program potential in that it does not account for the various mechanisms that can be used to deliver DSM programs for a specific measure and/or customer segment. FBC evaluates the potential identified for each energy end use, compares it to program activity, and calibrates programs where appropriate.

Figure 5-2 on page 19 of Exhibit B-1 shows the electric energy market savings potential by end-use, aggregated across all sectors. FBC states the dominant end-uses are lighting and whole facility.

Figure 5-3 on page 20 illustrates the amount of electric savings in the market potential included in consumer electronics, the kraft pulp and paper customer segment and from codes and standards which, historically, have not contributed to FBC's DSM program savings.

Figure 5-4 on page 21 illustrates the 2019-2022 DSM Plan compared to remaining market potential.

In the 2016 LTERP and LT DSM Plan proceeding, in response to British Columbia Utilities Commission (BCUC) IR 79.1, FBC states:

A CPR is an important planning tool that is used to:

- provide input into DSM Planning and long term energy conservation goals;
- develop new energy efficiency and conservation programs or initiatives, including behavior programs, and modify existing ones; ...

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 9

2.1 Please confirm whether “lighting” and “whole facility” are the dominant end-uses targeted by the 2019-2022 DSM Plan, in alignment with the CPR market potential analysis.

**Response:**

Confirmed. In the Commercial sector, lighting and whole facility (including new construction) energy savings make up a large share of the energy savings targeted by the 2019-2022 DSM Plan.

2.2 Please provide further details on FBC’s kraft pulp and paper customer segment, including the number of customers, and whether such customers are also self-generating.

**Response:**

FBC’s kraft pulp and paper customer segment consists of one customer that self-generates the majority of the electricity that it uses.

2.3 Please explain why consumer electronics and the kraft pulp and paper customer segment have not historically contributed to FBC’s DSM program savings.

**Response:**

FBC believes that the consumer electronics segment is better addressed through education, ENERGY STAR labelling, and ultimately government regulation due to the breadth of device types and their relatively small (although growing) energy consumption per device. FBC’s DSM programs are focused on larger end-uses such as space heating, water heating, large appliances, and lighting. FBC is not considering a program to target consumer electronics at this time.

The kraft pulp and paper customer segment typically self-generates nearly all of the electricity it uses except during turn around, maintenance and upset periods. Therefore, any electricity savings achieved as a result of investing in energy efficiency projects accrue nearly 100 percent to the customer and not to FBC’s DSM program. FBC offers the kraft pulp and paper segment access to the Industrial Custom Program; however, the energy savings and capital incentives

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 10

are pro-rated by the estimated amount of electricity savings FBC expects to realize from the project.

2.3.1 Please discuss what factors could contribute to FBC considering programs to target these areas in the future.

**Response:**

Please refer to the response to BCUC IR 1.2.3.

2.3.2 Please discuss what actions FBC is planning to overcome barriers in the consumer electronics and the kraft pulp and paper sectors.

**Response:**

Please refer to the response to BCUC IR 1.2.3.

2.4 Please explain the main reasons for the “remaining market potential” shown in Figure 5-4. Please include in the response a discussion of the extent to which customer acceptance of DSM programs, incentive levels, and the exclusion of cost-effective measures contribute to the remaining market potential.

**Response:**

The main reason for the “remaining market potential” shown in Figure 5-4 (which is the same as the “remaining market potential” shown in Figure 5-3) is to isolate the market potential that DSM programs can target, which is referred to as program potential, from segments that have not historically contributed to FBC’s DSM program savings.

FBC believes that the DSM portfolio presented in the 2019-2022 DSM Plan exceeds the market potential that is achievable. FBC uses market potential as an input to the DSM planning

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 11

process. Figure 5-4 shows an average of 23 GWh per year of remaining market potential from measures that are typically included in FBC's DSM programs. The 2019-2022 DSM Plan proposes an average of 32.8 GWh<sup>1</sup> of electricity savings annually at a cost of \$11 million per annum. As illustrated by the anticipated activities in the cannabis sector, the program potential for DSM programs can change depending on market conditions.

As identified in the question, customer acceptance of DSM programs and incentive levels have an impact on the amount of remaining market potential that can be achieved with DSM programs. Market potential represents a high-level assessment of savings that could be achieved over time, factoring in broader assumptions about customer acceptance and adoption rates that are not dependent on DSM program design. Additional effort is typically undertaken by program designers, using the directional guidance from a market potential study, to develop detailed plans for delivering conservation programs. FBC believes customer acceptance of DSM programs and incentive levels are sufficient for the 2019-22 DSM Plan annual savings targets to exceed the CPR remaining potential shown in Figure 5-4. FBC has included cost-effective measures unless the energy savings are not targeted within DSM programs, e.g., consumer electronics as discussed in the response to BCUC IR 1.2.3.

2.5 Please explain whether FBC considers that a DSM portfolio that approaches the market potential is theoretically achievable.

**Response:**

Please refer to the response to BCUC IR 1.2.4.

2.5.1 Please discuss the likely magnitude of costs required to meet this theoretical scenario.

---

<sup>1</sup> Please note that due to a correction to the estimated savings in the Low Income program area, the total 2019-22 DSM Plan savings have increased. For further information, please refer to the errata filed concurrently with FBC's IR responses.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 12

1 **Response:**

2 Please refer to the response to BCUC IR 1.2.4.

3

4

5

6 2.6 Please outline any new measures or programs that have been introduced in the  
7 2019-2022 DSM Plan as a result of the CPR.

8

9 **Response:**

10 FBC has not introduced new measures or programs in the 2019-2022 DSM Plan solely as a  
11 result of the CPR. The CPR characterized over 200 measures across the residential,  
12 commercial, and industrial sectors, covering electric and natural gas fuel types. The CPR  
13 prioritized measures with high impact, reliable data, and that are most likely to be cost-effective.  
14 Navigant reviewed current BC program offerings, previous CPRs and other Canadian programs,  
15 and potential model measure lists from other jurisdictions to identify measures with the highest  
16 expected economic impact. As a result, FBC was already aware of the measures included in  
17 the CPR, many of which were already included in existing DSM programs.

18 The primary role of the CPR market potential report is to assess the savings potential for each  
19 measure. To this end, FBC evaluates the potential identified for each energy end use,  
20 compares it to program activity, and calibrates programs where appropriate. Program savings  
21 forecasts were generally in alignment with the projected CPR market potential roll-out.  
22 However, the CPR market potential report indicated that there is more energy savings potential  
23 in residential lighting so FBC revised its forecast for residential lighting based on the CPR  
24 market potential. In addition, the large potential identified for communicating (smart)  
25 thermostats in the CPR market potential supported their addition to residential programs.

26

27

28

29 2.6.1 Please provide specific examples of how programs in the 2019-2022  
30 DSM Plan have been modified as a result of the CPR.

31

32 **Response:**

33 Please refer to the response to BCUC IR 1.2.6.

34

35

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 13

On page 14 of Appendix B to Exhibit B-1, Navigant states with respect to market potential results:

This section provides the market potential results calculated by the model at varying levels of aggregation, using the TRC benefit-cost test as a screen (which is consistent with the representation of economic potential in Section 4).

2.7 Please confirm and explain if the TRC benefit-cost screen included the 10% of expenditures that are permitted to use the modified Total Resource Cost (mTRC) to be considered cost-effective.

**Response:**

Not confirmed. The TRC benefit-cost screen used in the CPR did not use the modified Total Resource Cost (mTRC) approach.

Figure 1-5 on page 14 of Appendix B (Market Potential Report) indicates that in 2035, 97.6 percent of the technical potential that was identified is economic using only the TRC benefit-cost screen. FBC believes that applying the modified Total Resource Cost would not have added a significant amount (under 3 percent) of savings to the market potential.

Please refer to the response to CEC IR 1.11.3 for the list of all measures that were included in FBC's 2019-2022 DSM Plan. Although some individual measures did not pass the TRC, the program they were included in passed the TRC as a whole, without requiring the use of the mTRC to be considered cost-effective.

Pages 19 and 20 of Appendix B to Exhibit B-1 states:

Navigant found the greatest potential exists in the commercial sector in terms of GWh/year and as a percentage of consumption. The commercial sector captured almost 41% of market potential by 2035, while the residential sector captured 37% of the market potential.

...

When viewed as a percentage of consumption, similar sector-level trends in the market potential are evident, as shown in Figure 1-10 and Table B-5. The

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 14

commercial sector's market potential reaches 14% of commercial consumption by 2035, and the industrial sector reaches just under 13% of industrial consumption.

2.8 Please explain whether FBC considers the sector level trends identified in the CPR to be relevant in guiding the relative levels of DSM expenditure allocated to each sector in the 2019-2022 DSM Plan.

**Response:**

FBC believes that sector level trends identified in the CPR are relevant in guiding the relative levels of electricity savings from DSM programs allocated to each sector in the 2019-2022 DSM Plan. However, DSM expenditures to achieve the savings are dependent on the barriers to energy efficiency, the incremental cost of energy efficient measures, and customer uptake so the relative expenditure levels will vary by program and sector.

Section 1.2.6 of Appendix B to Exhibit B-1 describes adjustments for natural change in the CPR market potential study.

2.9 Please discuss whether FBC undertakes adjustments for "natural change" in its DSM forecasting.

**Response:**

FBC does not adjust DSM forecasts for natural change. However, FBC applies free ridership to program benefit-cost ratios, which accounts for natural change among program participants (i.e. customers that would have installed an energy efficient measure whether they received an incentive or not).

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 15

**3.0 Reference: PORTFOLIO LEVEL ISSUES**

**Exhibit B-1, p. 5**

**BC Energy Objectives**

Table 3-1 of Exhibit B-1 outlines “BC’s Energy Objectives Met by FBC DSM Plan”. With respect to *Clean Energy Act* Part 1, Section 2(h), FBC states:

FBC pursues electrification (fuel switching) measures pursuant to s. 18 of the CEA and s. 4 of the Greenhouse Gas Reduction (Clean Energy) Regulation. For example: FBC undertook construction of the Kootenay Electric Vehicle (EV) charging network and plans to pursue the construction of further EV charging facilities.

3.1 Please confirm if any fuel switching measures are included in the 2019-2022 DSM Plan.

**Response:**

FBC has not included any fuel switching measures in the 2019-2022 DSM Plan; however, the Company acts as a program delivery agent for the provincial EfficiencyBC program that does offer a limited number of fuel switching incentives to residential and commercial customers.

3.2 Please clarify the relevance of EV charging facilities to the 2019-2022 DSM Plan.

**Response:**

FBC included reference to EV charging facilities in the Application as an example of the ways in which FBC meets BC’s energy objective to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions, however FBC does not consider highway EV charging facilities directly relevant to the 2019-2022 DSM Plan itself.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 16

**4.0 Reference: PORTFOLIO LEVEL ISSUES**

**Exhibit B-1, pp. 11, 14**

**2019-2022 DSM Plan Portfolio Expenditures**

On page 11 of Exhibit B-1, FBC states:

The DSM Plan continues many of the cost-effective programs previously accepted in the 2018 DSM Plan, with some additions and modifications to simplify offers for customers, align programs with provincial partners, and comply with changes to applicable legislation.

Table 5-1 on page 14 shows the proposed expenditures, inflation adjusted, for the 2019-2022 DSM Plan.

4.1 Please provide a consolidated list of additional programs/ measures that have been included in the 2019-2022 DSM Plan, compared to the 2018 DSM Plan.

**Response:**

FBC has made the following changes to programs/measures from the 2018 DSM Plan in the 2019-2022 DSM Plan:

- FBC is continuing to update new construction programs to align with the BC Energy Step Code;
- In the residential sector, incentives for windows, drain water heater recovery, and communicating thermostats have been added in the 2019-2022 DSM Plan. These measures have been added due primarily to customer interest. The new window offer is in parallel with provincial partners in the Home Renovation Rebate program; and
- In the commercial sector, incentives for LED exit lights will be phased out in 2019 due to changes in provincial legislation.

4.1.1 Please briefly discuss whether these measures have been included as a result of the CPR Market Potential, changes in legislation, or other reasons.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 17

1 **Response:**

2 Please refer to the response to BCUC IR 1.4.1 for a discussion on the reasons why these  
3 measures were included. None were included as a result of the CPR Market Potential.

4  
5

6  
7 4.2 Please identify any programs or measures included in the approved 2018 DSM  
8 Plan that have been discontinued for the 2019-2022 DSM Plan.  
9

10 **Response:**

11 Please refer to the response to BCUC IR 1.4.1.

12  
13

14  
15 4.2.1 Please explain the reasons these programs have been discontinued.  
16

17 **Response:**

18 Please refer to the response to BCUC IR 1.4.1.

19  
20

21  
22 4.3 Please provide a table that shows the total expenditures by customer class in the  
23 2019-2022 DSM Plan as a percentage of forecasted customer revenue.  
24

25 **Response:**

26 FBC does not have forecast customer revenue beyond 2019. Therefore, FBC has provided a  
27 comparison of total DSM expenditures by customer class as a percentage of forecast customer  
28 revenue for 2019 as presented in FBC's recently filed Annual Review for 2019 Rates.

Sector	2019
DSM expenditures as % of revenues	Percent
Residential	1.6%
Commercial	3.2%
Industrial	5.4%

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 18

Sector	2019
Total (including wholesale)	<b>2.9%</b>

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32

4.3.1 Please explain the extent to which FBC has considered the balance of expenditures between customer classes in the development of the 2019-2022 DSM Plan.

**Response:**

While FBC does consider the balance of expenditures between customer classes in the development of DSM Plans, market activity is the biggest driver for the uptake of incentives. For example, the industrial expenditures as a percentage of revenues are higher than the other sectors due to the anticipated incentives for energy savings measures at cannabis production facilities.

FBC's DSM Guiding Principles, listed in Section 5.1 of the Application, include the goal of being universal and offering programs for all customer classes. Universality is an important objective for FBC's DSM programs, and the 2019 to 2022 DSM Plan includes programs for all customer classes.

4.4 Please calculate, for each year of the 2019-2022 DSM Plan, (i) DSM spending as a percentage of FBC revenues, and (ii) DSM energy savings as a percentage of energy sold.

**Response:**

Please refer to the response to BCUC IR 1.4.3 for DSM expenditures as a percentage of revenues for 2019. As noted in response to BCUC IR 1.4.3, revenue forecasts are not available for the remaining years of the DSM Plan.

The following table displays DSM energy savings as a percentage of energy sold (gross load before savings). Forecast Gross Load for 2019 is as presented in the recently filed Annual Review for 2019 Rates. Forecast Gross Load for 2020 through 2022 is as presented in the 2016 LTERP.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 19

Year	DSM Plan (GWh)	Forecast Gross Load (GWh)	Percentage of Energy Sold (%)
2019	32.8	3,646	0.90%
2020	32.3	3,723	0.87%
2021	32.6	3,758	0.87%
2022	33.3	3,800	0.88%

4.4.1 Please provide a comparison of these results to other electric utilities in North American jurisdictions. Please provide commentary to explain this comparison.

**Response:**

The American Council for and Energy Efficient Economy (ACEEE) publishes an annual report on the state of energy efficiency in the US. The *2018 State Energy Efficiency Scorecard* (published October 4, 2018) provides an overview of 37 jurisdictions in the US.

The report indicates that industry average energy efficiency savings as a percentage of electricity sales is 0.72 percent in the US (0.66 percent median) compared to FBC's 2019 0.90 percent shown in the response to BCUC IR 1.4.4. FBC would achieve a score of 3 (out of 7) for this percentage.

The report also indicates that industry average energy efficiency spending as a percentage of electricity revenues is 1.72 percent in the US (1.35 percent median) compared to FBC's 2019 2.9 percent shown in the response to BCUC IR 1.4.3. FBC would achieve a score of 1.5 (out of 2.5) for this percentage.

Compared to the other electric utilities in the ACEEE report, FBC is above (1.25 times) average in its 2019 DSM savings as a percentage of energy sold (gross load). FBC's DSM spending as a percentage of electricity revenue is well above (1.7 times) average in 2019.

As well, in the British Columbia Hydro and Power Authority (BC Hydro) F2017-F2019 Revenue Requirements Application proceeding (Exhibit B-9, BCUC IR 1.176.2), BC Hydro provides a comparison of its DSM savings as a percentage of electricity sales to other jurisdictions. BC Hydro's program savings, as a percent of retail sales, is 0.7 percent (F2014-16) and 0.6 percent (F2017-19).

FBC notes that there are many challenges with comparing data across jurisdictions, including:

- Inconsistencies in the quality and quantity of reported costs and savings data;

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 20

- 1      • Inconsistencies in the definition of different types of costs and savings;
- 2      • Differences in market opportunities; and
- 3      • Differences in the over-arching policy drivers for demand-side management activities.

4

5      As a result, conclusions based on jurisdictional comparisons should be evaluated cautiously.

6

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 21

**5.0 Reference: PORTFOLIO LEVEL ISSUES**

**Exhibit B-1, p. 11**

**DSM Plan Guiding Principles**

On page 11 of Exhibit B-1, FBC states:

Programs will have a goal of being universal, offering access to energy efficiency and conservation for all residential, commercial and industrial customers, including low income customers.

...

C&EM [Conservation and Energy Management] expenditures will have a goal of incentive costs exceeding 50 percent of the expenditures in a given year.

5.1 Please discuss whether FBC considers that there are any customer segments, including potential future customers, where there are remaining barriers to accessing FBC's DSM programs.

**Response:**

FBC believes that avenues exist for all customer groups to access FBC's DSM programs. Where barriers exist within customer groups, they are primarily due to lack of awareness/knowledge of FBC DSM programs and motivation to participate. These barriers are generally well understood as they are investigated as part of the program design and evaluation processes.

Please refer to the table included in Attachment 5.1, which outlines where FBC has identified customer group specific barriers to program awareness and/or adoption and the applicable mitigation strategies either underway or planned.

5.1.1 If yes, please discuss the actions FBC is taking or proposes to take to remove those barriers and ensure all customers have reasonable access to FBC's DSM programs.

**Response:**

Please refer to the response to BCUC IR 1.5.1.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 22

5.2 Please provide a table that illustrates incentive costs as a percentage of expenditures for each program area at the portfolio level and for the duration of the 2019-2022 DSM Plan. Please also provide data for 2018 as a comparison.

**Response:**

The following table provides incentive costs as a percentage of expenditures for each program area and at the portfolio level for the duration of the 2019-2022 DSM Plan. No value is provided for the Low Income Program Area in 2018 as it was included in the Residential program area.

**Incentive costs as a percentage of expenditures, 2018 DSM Plan and 2019-2022 DSM Plan**

Program Area (Sector)	2018	2019	2020	2021	2022
Residential	62%	69%	72%	74%	77%
Low Income	n/a*	88%	88%	87%	88%
Commercial	70%	68%	69%	69%	70%
Industrial	81%	89%	90%	90%	90%
<b>Total (portfolio)</b>	<b>55%</b>	<b>54%</b>	<b>58%</b>	<b>58%</b>	<b>60%</b>

\* Low Income was included under the residential program area in 2018

5.2.1 Please provide an explanation for any program areas where incentive levels in the 2019-2022 DSM Plan have increased or decreased by more than 10% compared to the 2018 DSM Plan.

**Response:**

In 2020 through 2022, the residential sector has a higher percentage of incentive expenditures compared to the 2018 DSM Plan due to an anticipated increase in incentives provided to customers while labour and expenses are kept at approximately the same level as 2019.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 23

**6.0 Reference: PORTFOLIO LEVEL ISSUES**

**Exhibit B-1, p. 13**

**Consultation**

On page 13 of Exhibit B-1, FBC states:

FBC engaged in and documented over 50 interactions and consultations related to the DSM Plan. The range of entities consulted with included: communities, customers, contractors, manufacturers, government, First Nations, vendors, interest groups, and the Energy Efficiency and Conservation Advisory Group (EECAG).

On page 13, FBC also states that consultation feedback included expanded alignment with industry influencers, consideration of upstream incentives and support for pre-commercial technologies.

6.1 Does FBC consider that there were any gaps or hard-to-reach entities with respect to its consultation activities? Please explain.

**Response:**

No, FBC believes that its consultation was comprehensive. FBC, in collaboration with FEI, spent approximately one year prior to the Application's filing date conducting its 2019-2022 DSM Plan consultation, and before that conducted ongoing program consultation with stakeholders as a regular course of business and as required for program management and program design. In a small number of cases, entities that FBC tried to reach did not respond to requests for information, but in those instances the necessary information was obtained through other channels and by consulting other parties.

6.2 Please explain further what is meant by industry influencers and whether FBC considers that the 2019-2022 DSM Plan works towards achieving alignment.

**Response:**

FBC considers industry influencers to be all stakeholders that impact program uptake of energy efficiency programs by FBC customers. Throughout the supply chain, industry influencers impact the purchase decisions of customers and installation quality and also educate end-users about proper equipment and building operation and maintenance. Government regulations and policy also impact product availability, building codes, installation standards and accreditation



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 24

1 programs. The 2019-2022 DSM Plan works towards achieving alignment with these industry  
2 influencers.

3 The following are examples of how FBC has reflected this in the 2019-2022 DSM Plan:

- 4 • Industry communication through Trade Ally Network communications and events;
- 5 • Hosting workshops and webinars with trades, manufacturers, energy advisors, and  
6 commercial and industrial energy consultants to elicit feedback on programs;
- 7 • Collaborating with program partners such as BC Hydro, BC's Ministry of Energy, Mines  
8 and Petroleum Resources, Natural Resources Canada, local governments, BC Non-  
9 profit Housing Association and BC Housing to expand the depth and reach of program  
10 offerings; and
- 11 • Collaborating with industry associations.

12  
13  
14  
15 6.3 Please define upstream incentives in the context of FBC's DSM activities.  
16

17 **Response:**

18 Upstream programs operate differently than downstream programs that engage end-use  
19 customers directly by working through manufacturers and/or distributors (also referred to as  
20 commercial partners). Upstream programs work with commercial partners to provide rebates in  
21 a point-of-sale model rather than providing a post-installation rebate. In an upstream incentive  
22 model, customers may not be required to complete an application, although the commercial  
23 partners are required to provide proof of purchase, proof of installation, and proof of rebate  
24 credit to the end-use customer. With the proof of purchase and installation FBC ensures that  
25 the rebated measure is operational and savings can be claimed. FBC claims the same energy  
26 savings for an upstream incentive as the downstream equivalent.

27 The Commercial Prescriptive and Industrial Prescriptive programs in the 2019-2022 DSM Plan  
28 intend to include upstream incentives for certain measures, including:

- 29 • LED lighting and lighting controls;
- 30 • Heat pumps;
- 31 • Heat pump water heaters;
- 32 • Efficient irrigation equipment;

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 25

- 1       • Efficient kitchen and laundry equipment;
- 2       • Variable speed drives; and
- 3       • Small efficient compressed air systems.

4

5 FBC also intends to continue to engage commercial partners to explore opportunities to expand

6 on upstream program delivery.

7

8

9

10               6.3.1    Please outline the programs, if any, where upstream incentives have

11                               been included in the 2019-2022 DSM Plan.

12

13   **Response:**

14   Please refer to the response to BCUC IR 1.6.3.

15

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 26

1    **7.0    Reference:    PORTFOLIO LEVEL ISSUES**

2                            **Exhibit B-1, pp. 23, 24, 26, 27**

3                            **FBC 2016 LTERP and LT DSM Plan proceeding, Exhibit B-2,**  
4                            **Response to BCUC IR 35.1; Response to BCUC IR 82.2**

5                            **FBC 2017 DSM Expenditures proceeding, Exhibit B-1, Appendix C, p.**  
6                            **23**

7                            **Cost Effectiveness Testing**

8                            On page 23 of Exhibit B-1, FBC states:

9                            The governing TRC test is often expressed as a ratio of the benefits of a DSM  
10                            measure divided by the measure's cost, including the utility's program costs. The  
11                            benefits are the "avoided costs", calculated as the present value over the  
12                            effective measure life of:

13                            i.    the measure's energy savings, valued at the LRM [Long Run Marginal  
14                            Cost]; and

15                            ii.   the measure's demand savings, valued at the DCE [Deferred Capital  
16                            Expenditure].

17                            The measures' energy and demand savings are grossed-up by the avoided  
18                            transmission and distribution energy losses ("line losses") of 8 percent before the  
19                            benefits are calculated. In its DSM Plan, FBC uses the LRM of \$100 per MWh  
20                            (\$2015) accepted in the 2016 LTERP for cost effectiveness testing under the  
21                            DSM Regulation. The DCE value of \$79.85 per kW-yr (\$2015), accepted in the  
22                            Commission's 2017 DSM Plan Decision, is again used for this Application.

23                            In the FBC 2016 LTERP and LT DSM Plan proceeding, in response to BCUC IR 35.1,  
24                            FBC states with respect to the LRM for avoided DSM energy costs:

25                            The LRM includes line losses, therefore includes delivery to the customer. If a  
26                            generation resource were to be located in the FBC system at the distribution  
27                            level, it can be expected that transmission losses would be reduced by 2 to 3  
28                            percent. Distribution losses would remain unless the generation source was  
29                            located right at the load source.

30                            In response to BCUC IR 82.2, FBC states:

31                            FBC has not evaluated this potential and considers DSM savings to be a reliable  
32                            but non-firm resource. Thus, DSM savings cannot be counted on to defer  
33                            network system reinforcements that are predicated on peak load requirements.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 27

In the FBC 2017 DSM Expenditures proceeding, Appendix C of Exhibit B-1 contains the Deferred Capital Expenditure (DCE) Study prepared by EES Consulting. On page 23, EES Consulting states:

FortisBC needs to consider if the avoided T&D costs need to be de-rated. Specifically, T&D costs will only be reduced if a significant amount of load reduction is attained in an area where the utility expansion plans can be altered. Using a deration approach helps mitigate the risk of overvaluing DSM program peak reduction potential.

7.1 Please confirm the present value of the benefits of the 2019-2022 DSM Plan with respect to energy savings (in \$ and MWh) and demand savings (in \$ and kW-year).

**Response:**

The present value of the benefits, totaling \$120 million, of the 2019-2022 DSM Plan are as follows:

Utility Benefits, 2019-2022	
Energy Savings	
2019 dollars (\$000s)	MWh
103,979	968,242
Demand Savings	
2019 dollars (\$000s)	kW-year
16,321	193,200

7.2 Please clarify if the energy savings figures presented in the 2019-2022 DSM Plan represent grossed up savings accounting for line losses.

**Response:**

Confirmed, the energy savings figures presented in the 2019-2022 DSM Plan represent grossed up savings that include line losses.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 28

7.2.1 Please clarify if grossing up energy savings to account for losses results in double counting, given that the LRMC includes line losses.

**Response:**

FBC believes that using an LRMC that includes line losses is in alignment with grossing up energy savings to account for line losses: they are prepared on the same basis. If energy savings include line losses, then the avoided cost of those savings should also include line losses. They have both been prepared at the system level (point of interconnection).

7.3 Please confirm that FBC considers DSM savings in the 2019-2022 DSM Plan to be a reliable but non-firm resource.

**Response:**

Confirmed. By “non-firm” FBC means that DSM savings are not dispatchable, as compared to generation resources.

7.3.1 If confirmed, please explain why FBC considers that DSM savings should be attributed benefits for avoided demand savings, as valued by the DCE.

**Response:**

FBC advises that calculated measure-level demand savings are multiplied by a diversity factor in order to estimate the portion that is co-incident with system peak. It is the measures’ diversified demand savings that are used to calculate demand savings benefits, valued using the DCE. FBC considers that insofar as FBC’s infrastructure upgrades are triggered by peak demand growth, the co-incident DSM demand savings are deferring the need for system upgrades. Additionally, the prescribed cost effectiveness test in section 4(1.1)(b), of the DSM Regulation<sup>2</sup> provides that FBC is to use “the avoided capacity cost” in addition to the LRMC in calculating measure benefits. The Company has long used a DCE factor, as updated and accepted in FBC’s 2017 DSM Plan filing, to value the benefits of the DSM program’s avoided demand savings.

---

<sup>2</sup> Demand-Side Measures Regulation 326/2008 as amended by B.C. Reg. 117/2017 (March 24, 2017).

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 29

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34

7.4 Please summarize any analysis undertaken by FBC with regards to whether the DCE value should be de-rated based upon the characteristics of the load reduction resulting from FBC’s DSM programs.

**Response:**

FBC notes that ascertaining a de-rating factor is not included in the “best practices” list on page 20 of the DCE Study (Appendix C of Exhibit B-1 in FBC’s 2017 DSM Plan Application). As such FBC has not undertaken any further analysis. FBC also notes that only one of the 13 entities/jurisdictions surveyed by EES Consulting for the DCE Study (NV Energy) actually used a de-rating factor.

7.4.1 Please explain why FBC has not de-rated the DCE value in this application or previous DSM expenditure schedule applications.

**Response:**

Please refer to the response to BCUC IR 1.7.4.

7.5 Please discuss if FBC will revisit the calculation of the DCE in the next LTERP filing.

**Response:**

FBC believes that the DCE value should be reviewed at regular intervals in conjunction with its long-term DSM plans, which are filed with the Company’s long term electric resource plans approximately every five years.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 30

On page 24 of Exhibit B-1, FBC states:

The measures contained in the DSM Plan all passed the standard TRC test, without resorting to use of the 15 percent NEB [non-energy benefit] adder, hence there are no expenditures falling into the 10 percent mTRC [modified Total Resource Cost] cap.

7.6 Please provide a list of measures that were not included in the 2019-2022 DSM Plan that would be cost effective under the TRC test and the mTRC test (within the 10% cap).

**Response:**

FBC did not exclude any measures from the 2019-2022 DSM Plan based on the TRC test that would otherwise have passed the mTRC test.

Please refer to the response to CEC IR 1.11.3 for the list of all measures that were included in FBC's 2019-2022 DSM Plan. Although some individual measures did not pass the TRC, the program in which such measures were included passed the TRC as a whole, without requiring the use of the mTRC to be considered cost-effective.

7.6.1 Please explain why FBC did not include additional measures in the 2019-2022 DSM Plan that could have been cost-effective under the TRC and mTRC.

**Response:**

FBC did not include additional measures in the 2019-2022 DSM Plan that could have been cost-effective under the TRC and mTRC because none were identified.

On page 26 of Exhibit B-1, FBC states:

Historically, FBC calculated the net-to-gross (NTG) ratio by adjusting the benefits downward for the presumed presence of free riders. Additionally, FBC has included known spill-over effects in the NTG ratio, which is a recognized

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 31

approach used by other utilities including BC Hydro. Spill-over is the conceptual opposite of free riders, thus including both effects presents a more complete and balanced view of program impacts.

Table 7-1 shows free-rider and spill-over rates for FBC's programs.

7.7 Please discuss, in the view of FBC, the extent to which savings attributable to spill-over effects could be considered similar to a behavioural DSM measure.

**Response:**

The savings attributable to spillover occur when a customer implements a measure without any program assistance in contrast to the customer achieving savings from behavioural changes prompted by information provided by FBC. Participant spillover refers to individuals who implement energy efficiency measures or efficiency actions without any financial or technical assistance from the program. It is possible to estimate the amount of participant spillover related to interventions from a specific program. FBC considers that the savings from behavioural DSM measures are different because FBC will provide assistance to customers to evaluate their energy consumption and change their behaviour to reduce their use.

7.7.1 Please explain why FBC makes adjustments for savings from spill-over effects but does not forecast energy savings from its Conservation Education and Outreach (CEO) programs.

**Response:**

Participant spillover refers to individuals who implement energy efficiency measures or efficiency actions without any financial or technical assistance from the program. FBC's Evaluation consultants estimate the amount of participant spillover related to specific programs.

FBC believes it is more difficult to measure energy savings from CEO initiatives. Historically, FBC has not measured or claimed savings for CEO initiatives. FBC has in the past analyzed the potential for claiming savings for CEO initiatives, but did not find enough evidence to claim savings. FBC will continue to explore ways to confirm energy savings for CEO initiatives and, where possible, measure and report on those savings. CEO programs will continue to foster a culture of conservation within the province by providing education to a broad range of customers, including residential and commercial customers and students. CEO programs will also continue to ensure that customers learn about taking steps towards energy conservation so that they will also be receptive to incentive programs when they are proposed.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 32

The only CEO initiative with potential forecast energy savings is the Residential Customer Engagement Tool. However, since the Residential Customer Engagement Tool initiative is in the planning stage, the evaluation plan for this initiative is still being developed. FBC anticipates the evaluation plan for this initiative to include a combination of customer acceptance and consumption analysis.

7.8 Please explain the high spill-over rates for residential lighting.

**Response:**

The high spillover rate indicates that FBC's residential lighting participants were also buying qualified lighting products during periods of the year when a DSM incentive was not available. The 2014 Evaluation of the FBC Residential Lighting and Appliance Programs report, undertaken by Evergreen Economics, used an in-store intercept methodology to survey lighting program participants and determine both the free-rider and spill-over rates.

As the Residential Lighting incentives are offered for limited-time periods twice a year, in spring and fall campaigns, the survey participants were asked how many qualified lamps were purchased – without incentives – during the prior year. The non-incentivized lamps savings were divided by the incentivized lamps savings to determine the spill-over rate.

7.8.1 Please explain why there is not a similar spill-over assumption for commercial lighting.

**Response:**

Spillover was not estimated in the 2013 Commercial Lighting report undertaken by Evergreen Economics. Unlike the periodic residential lighting campaigns discussed in the response to BCUC IR 1.7.8, FBC's Commercial lighting offers are available year-round primarily as point-of-sale rebates, thus it is unlikely that commercial customers will purchase qualifying products without a DSM incentive.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 33

1           7.9     Please explain whether FBC adjusts its incentive levels for programs with high  
2                   free-ridership.

3  
4     **Response:**

5     While not a primary driver of incentive levels, FBC uses free-ridership as an indicator of how  
6     effective incentive levels are at encouraging customers to invest in energy savings measures.

7

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 34

**B. ADDITIONAL APPROVALS SOUGHT**

**8.0 Reference: ADDITIONAL APPROVALS SOUGHT**

**Exhibit B-1, pp. 28, 29**

**Amortization Period**

On page 28 of Exhibit B-1, FBC states:

FBC currently uses a ten-year straight-line amortization of its DSM expenditures. FBC has undertaken the analysis for an amortization period that is in line with the average weighted measure life of all the measures in the DSM Plan, which is more appropriate from a cost/benefits matching perspective. The Company has determined the average weighted measure life to be 15.6 years, meaning that customers benefit from FBC's DSM measures for an average time period of approximately fifteen years. It is therefore appropriate that the costs also be amortized over this same period.

Table 8-1 on page 28 shows the average measure life weighted by incentives for the 2019-2022 DSM Plan.

FBC provides the incremental rate change from switching from the current 10-year to a 15-year amortization period in Table 8-2. On page 28, FBC states that at spending levels consistent with 2018, the proposed change in amortization results in a rate impact lower by 0.51 percent in 2019 than under the existing 10-year amortization.

8.1 Please reproduce Table 8-1 to include analysis of average measure life weighted by savings.

**Response:**

Please see the requested table below.

**Average measure life weighted by incentives and savings, 2019-2022 DSM Plan**

Sector	Incentives, (\$000s)	Measure life, years	Savings, GWh	Measure life, years
<b>Residential</b>	<b>\$9,054</b>	<b>18.6</b>	<b>31.0</b>	<b>15.8</b>
Home Renovation	\$5,243	18.7	16.2	17.8
Lighting	\$481	10.7	5.2	11.1
Low Income	\$2,191	18.0	6.2	13.7
New Home	\$1,013	23.8	2.1	20.9
Rental Apartment	\$126	11.9	1.2	11.6

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 35

Sector	Incentives, (\$000s)	Measure life, years	Savings, GWh	Measure life, years
<b>Commercial</b>	<b>\$8,101</b>	<b>14.3</b>	<b>61.8</b>	<b>14.1</b>
Commercial Custom	\$3,503	15.8	22.6	14.9
Commercial Prescriptive	\$4,599	13.2	39.1	13.7
<b>Industrial</b>	<b>\$5,841</b>	<b>12.4</b>	<b>40.2</b>	<b>12.4</b>
Industrial Custom	\$4,950	12.3	32.9	12.2
Industrial Prescriptive	\$891	13.5	7.3	13.5
<b>Total</b>	<b>\$22,997</b>	<b>15.5</b>	<b>133.0</b>	<b>14.0</b>

8.1.1 Please discuss any differences between the respective weighted averages.

**Response:**

The average measure life for DSM measures weighted by electricity savings is 14 years due to a higher amount of savings being achieved by measures with a shorter lifespan, compared to the average measures life for DSM measures weighted by expenditures.

8.1.2 Please reproduce Table 8-2 if the resulting weighted average does not round to 15 years.

**Response:**

The following table is a reproduction of Table 8-2 using the average measure life of 14 years weighted by electricity savings.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 36

1

### DSM rate impact comparison

<u>Incremental Rate Impact Compared to Prior Year</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
		0.27	0.23	0.17	0.14					0.09
Current Treatment: Amortizing DSM Expenditures over 10 years	0.28%	%	%	%	%	0.14%	0.22%	0.20%	0.12%	%
Proposed Treatment: Amortizing DSM Expenditures over 14 years	-	<u>0.27</u>	<u>0.25</u>	<u>0.23</u>	<u>0.19</u>					<u>0.18</u>
	<u>0.15%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>0.19%</u>	<u>0.17%</u>	<u>0.12%</u>	<u>0.20%</u>	<u>%</u>
	-	0.01	0.02	0.05	0.05		-	-		0.09
Difference	0.44%	%	%	%	%	0.05%	0.04%	0.08%	0.08%	%

<u>Incremental Rate Impact Compared to Prior Year</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
		0.00	0.01	0.00	0.00	-		-	-
Current Treatment: Amortizing DSM Expenditures over 10 years	0.07%	%	%	%	%	0.01%	0.00%	0.01%	0.01%
Proposed Treatment: Amortizing DSM Expenditures over 14 years		<u>0.11</u>	<u>0.11</u>	<u>0.10</u>	<u>0.04</u>				-
	<u>0.16%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.01%</u>
		0.10	0.10	0.10	0.05				
Difference	0.08%	%	%	%	%	0.00%	0.01%	0.00%	0.00%

2

3

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 37

8.2 Please explain why FBC weighted measure life by incentives instead of savings.  
Please discuss the pros and cons of each approach.

**Response:**

FBC calculated the average measure life weighted by expenditures primarily because there is more certainty with measure and program costs, which are reflected in FBC's accounts in the year they are incurred. In comparison, the benefits streams are not visibly shown in FBC's accounts and furthermore can be impacted by changes in the avoided costs, measure retention, obsolescence, etc.

Weighting by expenditures does risk over-representing the lifetime of the least cost-effective measures (i.e., those with relatively high expenditures per unit of electricity saved). Similarly, the reverse is true when weighting by electricity savings; the lifetime of the most cost-effective measures is over represented (i.e., those with relatively high energy savings per dollar).

8.2.1 Please discuss whether, in the view of FBC, expenditures or savings are a more appropriate measure of "customer benefits".

**Response:**

From a "customer benefits" perspective, an individual customer's return is based on their net expenditure (measure cost minus incentive) or Customer Portion of Costs, divided by their bill impact savings (energy savings times applicable rates). The customer's benefits, or payback period, are not necessarily coincident with the measure life.

FBC considers, however, that the matter at hand is the amortization of the utility expenditures, not that of its customers. Please also refer to the response to BCUC IR 1.8.2.

8.2.1.1 Please discuss the pros and cons of an approach that would take the middle point of weighted measure life by incentives and the weighted measure life by savings.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 38

## **Response:**

FBC has proposed a 15 year amortization period, which is the whole number that falls nearly in the middle of the 15.6 weighted average measure life using DSM incentives and the 14.0 year weighted average measure life using savings. Choosing the exact middle point, i.e., 14.8 years, is impractical, infers false precision, and is not meaningful from a rate-setting perspective (as amortization expense is set on an annual basis).

8.3 As an addition to Table 8-2, please provide a calculation that illustrates the cumulative rate impact of amortizing over 10 years and 15 years and the difference between the two amortization periods.

## **Response:**

FBC provides the following table that illustrates the cumulative rate change for the proposed spending using 10 year and 15 year amortization periods.

### **Cumulative Rate Change Difference between 10 and 15 year Amortization Periods**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Current Treatment: Amortizing DSM Expenditures over 10 years	0.28%	0.55%	0.78%	0.96%	1.09%	1.23%	1.45%	1.65%	1.77%	1.86%
Proposed Treatment: Amortizing DSM Expenditures over 15 years	<u>-0.22%</u>	<u>0.05%</u>	<u>0.30%</u>	<u>0.51%</u>	<u>0.73%</u>	<u>0.93%</u>	<u>1.06%</u>	<u>1.23%</u>	<u>1.40%</u>	<u>1.56%</u>
Difference	0.51%	0.50%	0.48%	0.45%	0.36%	0.30%	0.39%	0.42%	0.36%	0.30%

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
Current Treatment: Amortizing DSM Expenditures over 10 years	1.93%	1.93%	1.95%	1.95%	1.95%	1.94%	1.94%	1.93%	1.92%
Proposed Treatment: Amortizing DSM Expenditures over 15 years	<u>1.73%</u>	<u>1.89%</u>	<u>1.96%</u>	<u>2.08%</u>	<u>2.18%</u>	<u>2.22%</u>	<u>2.21%</u>	<u>2.22%</u>	<u>2.21%</u>
Difference	0.20%	0.05%	-0.02%	-0.13%	-0.23%	-0.28%	-0.28%	-0.28%	-0.29%

8.3.1 Please discuss FBC's position on whether overall costs to ratepayers should be a factor in determining the appropriate amortization period for DSM measures.

## **Response:**

FBC has considered a number of factors when determining the appropriate amortization period for DSM measures, including the relationship between the recovery period and the benefits of the expenditure, the impact on rates stability, and overall costs. As explained in Section 8.1 of the Application, an amortization period that matches the average weighted measure life of the

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 39

DSM expenditures is appropriate in order to match the costs and benefits of the DSM incentives.

8.4 Does FBC consider that the amortization period should be reviewed for each future DSM expenditure application, based upon the portfolio of planned measures?

**Response:**

FBC's intention for future applications would be to align with the average weighted measure life calculated at that time unless new information emerges that indicates a different approach would be more appropriate.

8.5 Please briefly summarize the assumptions underpinning the estimated life of a DSM measure.

**Response:**

The main assumption underpinning the estimated life of a DSM measure is that, on average, the measures will continue to operate for their estimated lifetime, even if a sample of measures fail before or after the average. FBC does not undertake analysis of the actual life of measures but relies on a number of sources for the estimated life of a DSM measure including manufacturer information, technical studies, technical resource manuals, and conservation potential reviews.

The main factor that affects measure life is the hours of use. The more the measure is used the shorter its life will be. FBC updates assumptions about measure life and operating hours on an ongoing basis to use the best available information. FBC believes that the risk of redundancy presented by new technologies is greatest in lighting but lower in areas with larger capital expenditures. FBC has observed a rapid uptake in LED bulbs and luminaires that may be replacing other technologies, such as T8 fluorescent luminaires, before the end of their useful life. FBC performs program evaluations and updates baselines to assess the impact of new technologies, such as LEDs. In contrast, FBC has observed that other pieces of equipment, such as air compressors or chillers, can remain in service well beyond their expected lifetime.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 40

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35

8.5.1 Please discuss if FBC undertakes any analysis of actual persistence of measures.

**Response:**

Please refer to the response to BCUC IR 1.8.5.

8.5.1.1 Please discuss the uncertainties associated with estimating DSM measure life, including the potential factors that could lead to actual measure life of DSM measures being shorter or longer than the estimated measure life. Please specifically comment on the risks of redundancy presented by new technologies.

**Response:**

Please refer to the response to BCUC IR 1.8.5.

8.6 Is FBC aware of other utilities in North America that amortize DSM Expenditures over a period of 15 years or greater? If so, please provide the details, such as the utility's name, amortization period, and information on the amounts that are deferred, capitalized or expensed, if any.

**Response:**

An industry review conducted by E Source (an energy industry analytics consultancy) as well as internal research found that few utilities publicly share amortization periods for DSM portfolios. Of those identified utilities that share amortization periods and rate base their DSM expenditures, one utility (Seattle City Light) has a 20-year amortization period and two utilities (PSE&G and BC Hydro) have a 15-year amortization period. Further details are provided in the table below.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 41

Utility	Jurisdiction	Rate base type	Amortization Period
PSE&G	New Jersey	Included in rate base	15-year amortization period
Seattle City Light	Washington	Most DSM expenditures are included in rate base with the exception of some administrative costs	20-year amortization period. Amortized costs include only program-specific expenditures that are related to installation of long-lived conservation measures. Expenditures not related to such programs are expensed as they occur.
BC Hydro	British Columbia	Included in rate base	15-year amortization period

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 42

1    **9.0    Reference:    ADDITIONAL APPROVALS SOUGHT**

2                            **Exhibit B-1, p. 29**

3                            **2012-2013 Revenue Requirements and Review of 2012 Integrated**  
4                            **System Plan proceeding Decision with Order G-110-12, p. 140**

5                            **Funding Transfers**

6                    On page 29 of Exhibit B-1, FBC states:

7                            FBC proposes that starting with 2019 it be permitted to transfer or “rollover”  
8                            unspent expenditures in a Program Area to the same Program Area in the  
9                            following year. As noted above, FBC’s DSM Plan is subject to change in  
10                            response to various external factors. These factors may require FBC to respond  
11                            by adjusting the timing of its planned expenditures. The flexibility to rollover  
12                            unspent amounts would allow FBC to adjust to external factors and allow FBC to  
13                            carry out its DSM Plan over the course of the four years, even if the timing of the  
14                            expenditures varies from plan. In effect, FBC is requesting that the Commission  
15                            accept the total expenditures per Program Area over the time period of the  
16                            expenditure schedule.

17                    On page 140 of the 2012-13 Decision, the BCUC determination states:

18                            The Commission Panel is of the view that a more formal policy regarding fund  
19                            transfers among sectors/ program areas is appropriate at this time, given the  
20                            substantial increase in the budget for DSM programs. The Commission Panel is  
21                            also of the view that a threshold of percent is most appropriate. **The**  
22                            **Commission Panel therefore approves FortisBC’ s transfer of a maximum**  
23                            **of 25 percent of the budget amount from one existing program area or**  
24                            **sector to another existing program area or sector without prior approval of**  
25                            **the Commission.** In cases where a proposed transfer into or out of an approved  
26                            Sector is greater than 25 percent of that sector, prior Commission approval is  
27                            required. The Commission Panel recommends that funding transfers of 25  
28                            percent or more requiring prior Commission approval, should, where feasible, be  
29                            presented to FortisBC’ s DSM Advisory Committee for feedback before the  
30                            approval request is made to the Commission.

31                    9.1    Please confirm whether, under FBC’s proposal regarding “rollover” of unspent  
32                            amounts from year to year, this would be cumulative or restricted to the following  
33                            year.  
34

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 43

1    **Response:**

2    FBC confirms that its proposal is to rollover unspent amounts from year to year on a cumulative  
3    basis such that, by the end of the four-year funding period in 2022, total actual DSM  
4    expenditures would be up to the requested funding amount of \$44.0 million with total Program  
5    Area amounts as set out in Table 5-1 of the Application.

6  
7

8

9                    9.1.1    Please explain under this proposal whether FBC considers that there  
10                   should be any upper limits to the amount of expenditure that could be  
11                   rolled over in any given year or cumulatively over the four year period.

12

13    **Response:**

14    FBC has developed a DSM Plan for the period 2019 to 2022 that forecasts reasonable and  
15    achievable expenditures for each year of the DSM Plan and FBC intends to follow and roll out  
16    the DSM Plan that it has worked hard to develop. However, in the event of changes to market  
17    conditions, customer responses to programs, or other external factors that impact the optimal  
18    timing of expenditures, the ability to roll over unspent expenditures to the following year will give  
19    FBC the opportunity to catch up in the following years and increase the likelihood that FBC will  
20    achieve its overall DSM expenditure plan for 2019 through 2022. Therefore, in order to ensure  
21    FBC is able to achieve its total DSM Plan expenditures of \$44.0 million by the end of 2022, FBC  
22    believes there should not be an upper limit to the amount of expenditures that could be rolled  
23    over in any given year. Please also refer to the response to BCUC IR 1.9.2.

24  
25

26

27                    9.1.1.1    If yes, please provide FBC's view as to the percentage of  
28                   program expenditures that would provide an appropriate  
29                   rollover over in any given year or cumulatively over the four  
30                   year period, with respect to balancing BCUC's regulatory  
31                   oversight and FBC's flexibility to adapt its DSM Plan.

32

33    **Response:**

34    Please refer to the response to BCUC IR 1.9.1.1.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 44

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36

9.1.2 Please explain under this proposal how FBC intends to provide information or explanation in its annual DSM reports to the BCUC regarding the amounts of expenditure rolled over to the following year.

**Response:**

If FBC’s proposal to transfer or “rollover” unspent expenditures is accepted, FBC plans to add information regarding unspent “rollover” values to its DSM program annual reports so that all amounts rolled over within a program area are transparently accounted for in the DSM program annual reports.

9.2 Please comment on whether this proposal incurs a greater risk of FBC underspending its overall approved DSM expenditures.

**Response:**

FBC considers that its proposal to roll over unspent expenditures year over year will actually reduce the risk of underspending its overall approved DSM expenditures. As noted in the Application, the ability to roll over unspent expenditures will allow FBC the flexibility to respond to various external factors and adjust the timing of planned expenditures in order to maximize program participation and savings. If FBC is not able to roll over unspent expenditures then the underspend in the previous year would be locked in, and FBC would fall short of meeting its overall approved DSM expenditures. If FBC is able to roll over unspent expenditures, then if there is an underspend in a given year FBC would have the opportunity to catch up in the following years, therefore increasing the likelihood that FBC would not fall short of spending its overall DSM expenditures. For these reasons, FBC believes there should not also be an upper limit to the amount of expenditure that could be rolled over in any given year.

9.2.1 Please comment on whether this proposal incentivizes FBC to backload spending to the end of the plan.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 45

1    **Response:**

2    FBC's proposal to roll over unspent expenditures in any year to the next does not incent FBC to  
3    backload spending to the end of the plan.

4    FBC has developed a DSM Plan for the period 2019 to 2022 that forecasts reasonable and  
5    achievable expenditures for each year of the DSM Plan. FBC also undertook an in-depth and  
6    varied consultation process that gathered information from various program stakeholders and  
7    interested parties and formed a key input into the DSM Plan. FBC intends to follow and roll out  
8    the DSM Plan that it has worked hard to develop.

9    FBC's request for approval to roll over unspent expenditures is a recognition that the DSM Plan  
10   is subject to changes in market conditions, customer responses to programs, and other external  
11   factors that could impact the optimal timing of program expenditures and is meant to give FBC  
12   flexibility to respond accordingly.

13   FBC's multi-year DSM Plan has forecast the most reasonable yearly expenditures to achieve a  
14   total spending portfolio of \$44.0 million by the end of the four-year plan. Given the magnitude of  
15   the DSM expenditures that FBC is forecasting over the four years of the Plan, backloading  
16   spending to the end of the plan would make achieving the total four-year DSM Plan  
17   expenditures much more difficult. Therefore, FBC has no incentive to do so.

18  
19

20  
21           9.3    Please discuss FBC's interpretation of the current funding transfer rules with  
22                respect to moving funds from one program area to another.

23  
24    **Response:**

25   FBC's understanding is that, as a result of the BCUC determination discussed below, there is no  
26   formal transfer policy in effect for its DSM expenditures at present. In addition, for the reasons  
27   explained in response to BCUC IR 1.9.3.1, FBC has not proposed any new funding transfer  
28   rules for the 2019-2022 DSM Plan.

29   FBC filed for acceptance of DSM expenditures for 2014 through 2018 as part of its Application  
30   for Approval of a Multi-Year Performance Based Rate-making Plan for 2014 through 2018 (2014-  
31   18 PBR Plan). Appendix H to the 2014-18 PBR Plan set out FBC's proposed expenditures for  
32   this period and also requested BCUC approval for the continuation of the program funding  
33   transfer rules directed by the BCUC for the 2012-13 test period in Order G-110-12 (and as set  
34   out in the preamble to this IR).

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 46

On July 16, 2014, FBC submitted a letter to the BCUC withdrawing its request for acceptance of its proposed DSM expenditures for 2015 through 2018 due to changes to the Demand-Side Measures Regulation enacted on July 10, 2014. FBC did not withdraw its request for acceptance of the remaining items in its DSM Plan, including its proposed DSM expenditures for 2014 and the funding transfer rules.

On September 15, 2014, the BCUC issued its Decision and Order G-139-14 on FBC's 2014-18 PBR Plan. As part of its Decision, the BCUC declined to rule on FBC's proposed DSM funding transfer rules after determining they were not applicable to the 2014 DSM funding application.

FBC has not proposed funding transfer rules as part of its subsequent DSM applications for the application periods of 2015-2016, 2017, or 2018 and the BCUC has not set out funding transfer rules in its decisions on any of those applications. Based on the foregoing, FBC considers that the funding transfer rules set out in Order G-110-12 were in place for the 2012-13 DSM Plan period. However, as a result of Order G-139-14, in which the BCUC declined to approve FBC's proposed funding transfer policy, no funding transfer rules have been in place since then.

9.3.1 Please discuss if FBC believes it is appropriate for FBC to require BCUC approval for funding transfers into or out of an approved program area.

**Response:**

FBC submits that BCUC approval for funding transfers into or out of an approved program area is not necessary for its 2019-2022 DSM Plan. The existing regulatory requirements and processes, including BCUC acceptance of DSM expenditure schedules, the prescribed cost effectiveness tests, the Energy Efficiency and Conservation Advisory Group (EECAG) and FBC's annual DSM reporting provide sufficient regulatory oversight of its DSM spending.

9.3.1.1 If yes, please provide FBC's view as to the percentage of program expenditures that would provide an appropriate funding transfer threshold, with respect to balancing BCUC's regulatory oversight and FBC's flexibility to adapt its DSM Plan.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 47

**Response:**

Please refer to the response to BCUC IR 1.9.3.1.

9.3.1.2 In the absence of such a policy, please provide FBC's position on how customers can be assured that FBC is working towards meeting approved expenditure levels in a given sector.

**Response:**

At a corporate level, FBC is committed, for fiscal, operational and reputational reasons, to meeting its approved DSM Plans. Within the C&EM management structure, managers are tasked with meeting their respective program area expenditure and savings targets annually and these targets are included in managers' annual performance objectives.

9.3.2 Please explain how FBC intends to provide information or explanation in its annual DSM reports to the BCUC regarding the amounts of expenditure transferred into or out of an approved program area.

**Response:**

Please refer to the responses to BCUC IR 1.9.3 and 1.9.3.1.

9.4 Does FBC believe that it could be appropriate for there to be a mechanism for reviewing the levels of approved expenditures if there was a material change to the DSM Regulation in the period covered by the 2019-2022 DSM Plan, for example, with respect to cost-effectiveness criteria?



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 48

1 **Response:**

2 FBC does not believe such a mechanism is needed. If there were changes to the DSM  
3 Regulation in the period covered by the 2019-2022 DSM Plan, FBC would review its level of  
4 expenditures in light of the changes and determine whether there was any need to file an  
5 amended expenditure schedule with the BCUC. For instance, if a change to the DSM  
6 Regulation made a new program cost effective or an existing program more cost effective, FBC  
7 would have to assess the feasibility and impacts of launching the new program or increasing  
8 funding, and determine whether it should file for an increase to its expenditure schedule to  
9 accommodate the change in circumstances. Such a decision would depend on a variety of  
10 factors that would vary in the circumstances, including the amount of time and resources  
11 needed to plan and organize any new program, whether the new program could be  
12 implemented before the end of the term of the expenditure schedule, whether programs could  
13 be ramped up to accommodate any increase in funding, and whether changes to program  
14 design are necessary. This process is consistent with the structure of the UCA which gives  
15 discretion to FBC on the timing and level of its DSM expenditure schedules, subject to the fact  
16 that the BCUC cannot approve rates for the purpose of recovering DSM expenditures that have  
17 not been the subject of an approved expenditure schedule.

18

19

20

21 9.4.1 If yes, please discuss how such a mechanism could operate.

22

23 **Response:**

24 Please refer to the response to BCUC IR 1.9.4.

25

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 49

## C. PROGRAM LEVEL ISSUES

### 10.0 Reference: PROGRAM LEVEL ISSUES

Exhibit B-1, Appendix A, pp. 3 to 5

FBC 2018 DSM Expenditures Proceeding (2018 DSM Proceeding),

Exhibit B-2, Appendix A2, p. A6

#### Residential Program Area

Table 2-1 of Appendix A to Exhibit B-1 shows Residential Program Area expenditures and savings for 2019-2022.

On page 5 of Appendix A to Exhibit B-1, FBC states:

The key changes, compared to the previously approved programs in the 2018 FBC DSM Plan, are:

- Aligning new home rebates with the BC Energy Step Code. By broadening rebates and adding tiers, FBC will be able to encourage and capture additional savings from Step 4 and 5 homes; and
- Accounting for the upcoming changes to lighting standards. Program energy savings from light bulbs, fixtures, and controls peak in 2019 prior to the code change and taper down in the following years.

10.1 Please provide a table that, for each program in the residential area, shows the estimated program expenditures in 2019, the approved expenditures in the 2018 DSM Plan and the percentage variance.

#### **Response:**

The requested table is provided below. Please note that in the 2018 DSM Plan, heat pumps, appliances, and water heating were listed as individual programs. In the 2019-2022 DSM Plan, these measures are consolidated under the Home Renovation Program. Therefore, 2018 measures were similarly consolidated in the table below in order to provide a more direct comparison.

Residential Program	2018 Approved (\$000s)	2019 Forecast (\$000s)	% variance
Home Renovation	\$650	\$1,200	85%
New Home	\$76	\$184	142%
Lighting	\$202	\$157	-22%
Rental Apartment	\$53	\$54	2%

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 50

Residential Program	2018 Approved (\$000s)	2019 Forecast (\$000s)	% variance
Labour and expenses	\$610	\$491	-20%

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

10.1.1 Please provide an explanation for any programs with a change in expenditures greater than +/- 25%.

**Response:**

The Home Renovation and New Home programs have a change in expenditures greater than 25 percent. Some of the factors contributing to the increase are as follows:

Home Renovation

- Higher incentive levels for heat pumps, insulation and bonus offers;
- Consolidation of programs thereby introducing appliances, heat pumps, and heat pump water heaters under one program;
- Greater participation levels overall stimulated by revised incentives and the utility and EfficiencyBC partnership; and
- Introduction of new measures such as windows, communicating thermostats and drain water heat recovery.

New Home

- March 2017 amendments to the DSM Regulation enabling province-wide incentives;
- Consolidation of programs thereby introducing appliances and heat pump water heaters under one program;
- Greater participation levels overall through local government adoption of the BC Energy Step Code and builder training and outreach; and
- Introduction of new measures such as communicating thermostats and drain water heat recovery.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 51

1

2

10.1.2 Please confirm and explain that FBC expects to require lower annual expenditures on labour and expenses for the duration of the 2019-2022 DSM Plan, compared to the 2018 DSM Plan.

3

4

5

6 **Response:**

7

Not confirmed. Residential expenditures on labour and expenses are unchanged. The 2018 DSM Plan labour and expenses include costs related to Low Income and the Customer Engagement Tool, which are reallocated in the 2019-2022 DSM Plan. Therefore, a direct comparison between Residential Program Area labour and expense costs between the two plans cannot be made.

8

9

10

11

12

13

14

15

10.2 Please clarify if the residential lighting program is cost-effective on a TRC basis if expenditures and savings from activities in 2020 to 2022 only are taken into account.

16

17

18

19 **Response:**

20

Confirmed, the residential lighting program remains cost-effective on a TRC basis if expenditures and savings from 2020-2022 only are taken into account. The TRC benefit cost ratio for the residential lighting program when including only expenditures and savings from 2020-2022 is 1.7 compared to 1.9 as filed.

21

22

23

24

25

26

27

10.3 Please explain the significant ramp up of expenditures in the new home program from 2019 to 2022.

28

29

30 **Response:**

31

The New Home program was revised to satisfy the amendments to the DSM Regulation, made in March 2017, regarding the adequacy of a DSM plan, which require the DSM portfolio to include measures in support of the BC Energy Step Code (Step Code).

32

33

34

Typically building code is the baseline for claimed energy savings for new home measures. In the past, if a municipality adopted a higher energy performance code, a new baseline would

35

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 52

have to be considered, resulting in reduced energy savings and potentially an adjustment of incentive levels. The 2017 amendment to the DSM Regulation allowed the building code baseline to be used regardless of the step code level a municipality has adopted, and thus has enabled FBC and FEI to offer a province-wide Step Code program offer and streamline the program for energy advisors, builders and local governments.

Municipal adoption of the Step Code will drive program participation as builders/developers become educated about the benefits of high performance homes and how they can attain these new standards.

10.3.1 Please briefly explain the barriers to adoption of Step 4 and 5 homes in the absence of a supporting DSM program.

**Response:**

Primary barriers for Step 4 and 5 homes include high upfront costs, due to the need for a better building envelope and more efficient mechanical systems, as well as the lack of contractor, builder and industry knowledge of how to attain these higher steps.

FBC's new home program is designed to overcome barriers through a two-pronged approach. Rebates will serve to offset incremental costs and education and training will be offered to build industry capacity and a knowledge base to assist builders in reaching these higher tiers.

On page 4 of Appendix A to Exhibit B-1, FBC states:

With its temperate winters and hot summers, the FBC service area is an ideal climate for air source heat pumps (ASHP).

In the 2018 DSM Proceeding, Exhibit B-2, Appendix A2, on page A6, FBC states:

The incentive value for a forced air central ASHP was doubled in the 2017 DSM Plan (and continues in 2018) and both central and ductless ASHP configurations are eligible for the HRR bonus offer to attract more comprehensive retrofits. In spite of FBC's increased rebate values, participation numbers continued to decline throughout 2017. An insight report was conducted in summer 2017 that

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 53

identified customers' knowledge (or lack thereof) and interest in heat pump technology. It also uncovered barriers for adoption, such as the preference to switch to a lower cost fuel i.e. natural gas and customer aversion to Tier 2 of the Residential Conservation Rate. In response to declining participation, the 2018 budget was reduced to ensure participation numbers could be met in the interim while tools to increase the number of customers participating in the program are developed. In 2018, a communications campaign targeting customers with electricity as their primary heating source will leverage perceived strengths of heat pump technology. This is intended to set the stage for increased participation in subsequent years.

10.4 Please provide a comparison of the expected expenditure on ASHP in 2018, and the annual expenditures for the 2019-2022 DSM Plan.

**Response:**

Consolidated Air Source Heat Pump Forecast Expenditures 2018-2022 (\$000s)				
2018 Projected	2019 Plan	2020 Plan	2021 Plan	2022 Plan
\$337	\$684	\$749	\$820	\$898

In the 2018 DSM Plan proceeding, Exhibit B-2, Appendix A2, on page A6, the line item for Heat Pumps includes a \$167,000 expenditure for FBC's stand-alone central heat pump program. In providing an overview of 2018-2022 consolidated heat pump expenditures in the table above, FBC included incentives for ductless and central air source heat pumps, heat pump tune ups, as well as communications expenditures. These numbers demonstrate a substantial increase in expenditures due to increased incentives, increased participation and higher market activity through partnerships with the Home Renovation Program and EfficiencyBC.

10.5 Please explain whether FBC considers that its communication activities in 2018 will lead to increased uptake of ASHP over the duration of the 2019-2022 DSM Plan.

**Response:**

Yes, FBC considers that its communication activities in 2018 will lay the groundwork for increased uptake of ASHP in 2018 and ongoing communications activities will drive further participation over the duration of the plan. Communication activities commencing November 2018, will focus on the benefits (financial and non-energy) of heat pump technology. The

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 54

1 message will target high consumption customers through direct mail, digital and social media  
2 ads, and conventional print ads. Results of the campaign will be monitored and, if necessary,  
3 adjusted to achieve desired results for subsequent campaigns.

4  
5  
6  
7 10.5.1 Please discuss if further activities are planned in the 2019-2022 DSM  
8 Plan to increase customer awareness and interest in ASHP.  
9

10 **Response:**

11 In addition to FBC's 2018 communication activities, rebate levels for central and ductless heat  
12 pumps were evaluated and increased to stimulate interest in the program.

13 Contractor engagement continues to be a key driver to increase customer awareness. In 2018,  
14 heat pump contractors became eligible to participate in the Trade Ally Network, which offers the  
15 benefit of co-funded advertising. These ads promote ASHP rebates and are often paired with  
16 an energy efficiency message. Further contractor engagement activities will be explored  
17 throughout the duration of the 2019-2022 DSM Plan.

18 ASHP programs have been consolidated under the Home Renovation program to streamline the  
19 customer experience and integrate program partner (FEI, BC Hydro and Efficiency BC) offers  
20 more easily. The streamlined approach is expected to improve customer satisfaction and  
21 improve participation.

22

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 55

**11.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, pp. 6, 7**

**2018 DSM Proceeding, Exhibit B-2, Appendix A2, p. A8; Exhibit B-4,  
Response to BCOAPO IR 1.3.5**

**Low Income Program Area**

On page 6 of Appendix A to Exhibit B-1, FBC states:

Table 3-1 outlines the Low Income programs planned expenditures, energy savings and the Benefit/Cost ratio on a Total Resource Cost (TRC) basis. Overall, the Low Income Program Area continues to grow throughout the plan period.

11.1 Please reproduce Table 3-1 with the Benefit/Cost ratio on a TRC basis included.

**Response:**

Please see the requested table below. Please note that the energy savings for two DSM measures in the Low Income Direct Install program were inadvertently excluded in the Application. The correction results in the addition of 0.2 GWh of estimated savings for each year of the 2019-2022 DSM Plan. For further information, please refer to the errata filed concurrently with FBC's IR responses.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 56

1 **Table 1: Low Income Program Expenditures and Savings**

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)					TRC 2019-2022
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Self Install (ESK)	\$74	\$74	\$74	\$74	\$296	0.2	0.2	0.2	0.2	1.0	3.6
Direct Install (ECAP)	\$665	\$687	\$704	\$726	\$2,781	0.9	0.9	0.9	0.9	3.5	1.9
Social Housing Support											
Prescriptive Rebate	\$15	\$16	\$18	\$20	\$68	0.1	0.1	0.1	0.1	0.4	1.5
Support	\$26	\$30	\$35	\$40	\$130						
Labour and expenses	\$64	\$64	\$64	\$64	\$254						
<b>Program</b>	<b>\$843</b>	<b>\$870</b>	<b>\$894</b>	<b>\$923</b>	<b>\$3,530</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.3</b>	<b>4.9</b>	<b>1.9</b>

2

3

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 57

11.2 Please confirm that FBC's forecasted expenditure in the Low Income Program Area is higher in 2019 than the approved expenditures in the 2018 DSM Plan.

**Response:**

Confirmed. FBC's forecast expenditure in the Low Income Program Area is higher for 2019 than the approved expenditures in the 2018 DSM Plan.

**Table 1: Low Income Program Area DSM Plan Expenditures**

2018 Approved	2019 Plan
\$731k	\$843k

On page 7 of Appendix A to Exhibit B-1, FBC states:

Some work that has either already begun or will begin shortly includes:

...

- Strengthening awareness and engagement among low income individuals through attending relevant venues (e.g. Food banks), direct mail, program collateral at MLA offices, partnerships (e.g. Ministry of Social Development), attending social housing events (e.g. Cooperative Housing Federation of BC, BC Non-Profit Housing Association), digital campaigns, and other opportunities that arise.

In the 2018 DSM Proceeding, on page A8 of Exhibit B2, FBC states:

While outreach has been and will continue to be strengthened throughout FBC's service region, the budget allocated to ECAP in 2018 is reflective of the lower participation rates seen in 2017.

In the 2018 DSM Proceeding, in response to BCOAPO IR 1.3.5, FBC states:

FBC has a number of initiatives planned to further strengthen its outreach efforts regarding low income programs, including:

- Expansion of its community social service organizations (CSSOs) honoraria pilot project to provide CSSOs an honorarium to complete the ECAP application on behalf of any clients that face challenges in

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 58

completing the application independently. The project financially supports CSSOs to market ECAP through their existing marketing channels.

- Collaborated efforts with local governments to promote ECAP:
  - o Marketing through their existing communication channels;
  - o ECAP program presentations to Affordable Housing and Poverty Prevention committees; and
  - o Introductions to local CSSOs.
- ECAP and low-income program presentations to additional CSSOs.
- More and sustained personalized (face-to-face) outreach with First Nations communities to promote low-income programs, as well as new customizable, culturally appropriate collateral to enhance promotional outreach, including videos, for First Nation audiences.

11.3 Please discuss whether FBC considers that its outreach efforts regarding low income programs in 2018 have been successful in terms of promoting increased uptake.

**Response:**

FBC believes its outreach efforts regarding low income programs in 2018 have been successful, however there is sometimes a lengthy engagement period and therefore it is not always possible to measure success in terms of short-term increased uptake.

For programs such as the Direct Install Program (ECAP) and the Social Housing Support Program, the engagement period can be lengthy. FBC does not count participants in the program until the product or service has been completed and there are often several months between a successful outreach initiative and the completion of a retrofit project. It can even be several months between an initial outreach engagement and the completion of an application to a Low Income program. FBC believes sustained outreach will lead to a healthy funnel of participants and the resultant participant count in the Low Income programs are likely to be realized over the coming months.

For programs such as the Self Install program (ESK) the engagement period is short and uptake is quickly measurable. The Self Install program has performed well in 2018 and in the first 9 months of 2018, FBC has attracted 488 participants to the program, compared to 278 participants in the first 9 months of 2017.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 59

Overall, FBC believes that outreach efforts are successful in attracting participants to Low Income programs. FBC also expects that programs with longer engagement periods will have stronger participation numbers in 2019.

11.4 Please confirm that the outreach activities summarized in the 2019-2022 DSM Plan are expected to be sustained throughout the duration of the 2019-2022 DSM Plan.

**Response:**

Confirmed, outreach activities will be sustained throughout the duration of the 2019-2022 DSM Plan. The specific awareness and engagement activities in the DSM Plan are examples of activities that will be pursued. Activities will be evaluated and those activities that are successful will be repeated throughout the plan period. Activities that are not successful will be replaced by other outreach activities.

11.4.1 Please confirm that additional outreach efforts have been included in the 2019-2022 DSM Plan compared to the 2018 DSM Plan.

**Response:**

Outreach efforts will be evaluated annually; outreach efforts of the year prior will be analysed and FBC will seek opportunities to expand on tactics that are successfully attracting participants and strengthen the awareness of its low income programs.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 60

**12.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, pp. 8, 9**

**Commercial Program Area**

Table 4-1 of Appendix A to Exhibit B-1 shows the Commercial Program Area expenditures and savings for 2019 to 2022.

On page 8 of Appendix A to Exhibit B-1, FBC states:

For the 2019-2022 DSM plan, energy conservation measures for commercial customers are grouped into the following two core program areas, which encompass measures that are similar in terms of what they offer customers and how they are delivered to the market:

- Prescriptive Program; and
- Custom Program

Customers in the commercial market have diverse business types, wants, needs, and degrees of sophistication. The proposed groupings enable a non-measure specific approach that FBC will employ to deliver its energy efficiency offers to the commercial market. This approach allows FBC to adapt the market-facing aspects of each program to suit the needs of the various target customer segments.

On page 9 of Appendix A to Exhibit B-1, FBC states with respect to the Custom Program:

The Custom Program provides offers to encourage commercial customers to identify, assess, and implement custom building energy-efficiency projects for existing and new buildings. The program is administered jointly with FEI, providing customers with a one-stop program in the FBC service territory to evaluate and implement building-scale energy efficiency projects.

...

FBC and FEI are currently developing a retrocommissioning offer. Retrocommissioning refers to the identification and implementation of low- and no-cost measures to improve building energy performance. FBC and FEI had a joint retrocommissioning offer in market (the Building Optimization Program) from 2014-2017. While the incentive levels and program offers for the re-launch have not been finalized, FBC is considering support for retrocommissioning investigation studies, completion studies, coaching and/or performance incentives.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 61

12.1 Please confirm that FBC's forecasted expenditure in the Commercial Program Area in 2019 has reduced compared to the levels approved in the 2018 DSM Plan.

**Response:**

FBC confirms that the forecast expenditure in the Commercial Program Area in 2019 has reduced compared to levels approved in the 2018 DSM plan. Please refer to the table below:

DSM Plan Year	Expenditure (\$000s)
2018 Approved	\$3,473
2019 Forecast	\$3,178

12.1.1 If confirmed, please explain the reason for the decreased expenditures.

**Response:**

The decrease in Commercial Program Area expenditures in the 2019-2022 DSM Plan, compared to the 2018 DSM Plan, is primarily a result of the forecast decrease in the participation and expenditures in the Prescriptive Program. The rationale for the forecast decrease in Prescriptive Program participation and expenditures is explained in the response to BCUC IR 1.12.3.

12.2 Please provide the expected magnitude of load growth gross of DSM for commercial customers from 2019 to 2022.

**Response:**

The following table contains the DSM Plan savings and before-savings gross load growth of commercial customers in the LTERP and 2019 Annual Review from 2019 to 2022.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 62

Year	DSM Plan (GWh)	LTERP Forecast Load Growth (GWh)	2019 Annual Review Forecast Load Growth (GWh)
2019	15.5	18.3	14.3
2020	15.5	15.5	
2021	15.3	10.4	
2022	15.5	17.9	

12.3 Please explain why annual expenditures in the Commercial Prescriptive Program decline over the course of the 2019-2022 DSM Plan.

**Response:**

The annual expenditures in the Commercial Prescriptive Program are expected to decline over the course of the 2019-2022 DSM Plan period primarily due the maturation and transformation of the LED lighting market. Incentives supporting LED lighting and controls represent approximately 90 percent of the Commercial Prescriptive Program spending in 2018 to date.

The 2016 FBC Conservation Potential Review (CPR) shows a declining market potential with respect to commercial lighting measures. In 2018, FBC has already seen reduced participation in the Commercial Prescriptive Program as compared to 2017. FBC expects this trend to continue as the LED market continues to mature and be transformed. In 2019, FBC is phasing out the LED exit sign measure. In 2020, Canada is expected to bring in new federal energy efficiency regulations that will result in the phase out of several LED bulb measures currently in the Commercial Prescriptive Program due to new product baselines.

While FBC began offering new non-lighting prescriptive measures in 2018 and expects the efficient non-lighting market to grow, the decline in prescriptive lighting is expected to result in an overall reduction in forecast Commercial Prescriptive Program annual expenditures.

12.4 Please discuss whether FBC is planning activities to seek further opportunities in the commercial sector to maintain or increase its DSM offerings to commercial customers in future years.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 63

1 **Response:**

2 FBC continues to seek additional opportunities to increase its future Commercial Program Area  
3 DSM offerings. These activities include, but are not limited to:

- 4 • Continuing to engage with commercial and institutional customers to assess program  
5 demand and seek input on FBC program offers;
- 6 • Conducting bi-annual review of commercial prescriptive programs to identify new energy  
7 efficiency product offers;
- 8 • Expanding upstream incentives to non-lighting contractors and distributors to encourage  
9 adoption of new energy efficiency products, including efficient refrigeration, commercial  
10 kitchen, and laundry measures;
- 11 • Developing a joint retrocommissioning offer with FEI to target low and no-cost energy  
12 savings in commercial and institutional buildings; and
- 13 • Expanding and simplifying new construction program offers to capture the new  
14 construction, whole building market potential identified in the 2016 FBC Conservation  
15 Potential Review.

16  
17

18  
19 12.5 Please explain whether FBC believes that the new groupings for the 2019-2022  
20 DSM Plan will have an impact on the deliverability of FBC's forecasted energy  
21 savings.  
22

23 **Response:**

24 FBC believes that the grouping of offerings in the 2019-2022 DSM Plan will have a negligible to  
25 positive impact on FBC's forecast energy savings. Historically, the Commercial Program Area  
26 was divided by end-use rather than delivery method. The Commercial Program Area is divided  
27 by delivery method in the current DSM Plan. This reflects FBC's goal of pursuing whole building  
28 energy savings opportunities, rather than separating customer participation in DSM program  
29 offerings by end-use.

30 Grouping FBC and FEI prescriptive rebates offers together into one customer-facing  
31 Prescriptive Program allows FEI and FBC to present a broad portfolio of energy efficiency  
32 opportunities, rather than presenting the customer with a variety of near-identical, end use-  
33 specific programs. Including retrocommissioning and custom program offers into the Custom



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 64

Program allows FEI and FBC to present a pathway to target deeper whole-building energy efficiency opportunities that go beyond offers in the Prescriptive Program.

Grouping the offers differently does not expand FBC's DSM offerings and has negligible impact on FBC's forecast energy savings in itself. However, presenting DSM offers in a more customer-focussed manner, may have a small net-positive impact on FBC's forecast energy savings.

12.6 Please discuss whether the Custom Program includes fuel switching, given the joint administration with FortisBC Energy Inc. (FEI).

**Response:**

The Custom Program does not include fuel switching. Energy studies and capital incentives provided are limited to identifying and implementing energy efficiency opportunities. While both electric and natural gas energy efficiency opportunities can be pursued together (funded by FBC and FEI separately), fuel switching opportunities cannot be pursued in the Custom Program.

FBC does administer the EfficiencyBC program that targets commercial and institutional electrification in the FBC service territory, but the funding to support program administration and incentives is provided by the provincial and federal government and is not included in the FBC DSM Plan budget.

12.7 Please explain why the retrocommissioning offer was discontinued following the 2014 to 2017 period.

**Response:**

FBC's Building Optimization Program (BOP) was fully subscribed in 2014 and complete in 2017. Customer feedback from the BOP suggested that the program needed to be revised to simplify and improve the customer experience. The BOP was discontinued after 2017 to facilitate the development of a new retrocommissioning offer that could be jointly administered with FEI.

FBC and FEI are currently developing a retrocommissioning offer to be included in the Custom Program that is expected to be launched in late 2019 or early 2020.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 65

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29

12.7.1 Please discuss why FBC has determined that the retrocommissioning offer should be relaunched.

**Response:**

FBC determined that the retrocommissioning offer should be relaunched, as retrocommissioning was identified to have a significant market potential in the 2016 FBC CPR (Appendix B to the Application)<sup>3</sup>. FBC also received feedback that a new retrocommissioning offer would be desirable during stakeholder consultation with customers and consultants.

12.8 Please clarify if the forecasted expenditures in the Table 4-1 for the Custom Program include estimated expenditures for retrocommissioning.

**Response:**

The forecast expenditures in Table 4-1 for the Custom Program include estimated expenditures for retrocommissioning.

12.8.1 If not included, please explain how FBC expects these offers to be funded.

**Response:**

Please refer to the response to BCUC IR 1.12.8.

<sup>3</sup> Exhibit B-1, Appendix B - 2016 FBC CPR, Section 5 - Market Potential, Figure 1-20, Com - Comprehensive Recommissioning and Com - Building Automation Control measures, page 26.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 66

**13.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, pp. 6, 23**

**FBC 2016 LTERP and LT DSM Plan proceeding, Exhibit B-1,  
Appendix E, p. 16**

**New Industrial Customers**

On page 6 of Exhibit B-1, FBC states:

The 2016 LTERP contemplated a number of load drivers, including #6 “Large Load Sector Transformation: unanticipated growth of large load customers not associated with traditional energy intensive industries”. Such unanticipated load growth at the time of the 2016 LTERP is now materializing as FBC is aware of 14 cannabis production facilities that are proposed in its service area. The LT DSM Plan called for a ramp up in DSM spending and savings to a target of 32 GWh/yr in 2023. However in response to the DSM opportunities presented by the proposed cannabis facilities, FBC has advanced the 32 GWh/yr DSM savings target to 2019. Similarly the LT DSM Plan pro-forma expenditures have been advanced.

On page 11 of Appendix A to Exhibit B-1, FBC states:

To date, fourteen new industrial cannabis operations are in the planning or construction stage in the Southern Interior. FBC has received a number of requests to provide incentives for LED grow lights compared to baseline high intensity discharge grow lights. Cannabis producers have also expressed interest in investigating other electric energy efficiency opportunities, including ventilation and air conditioning.

On page 23 of Exhibit B-1, FBC states:

The measures’ energy and demand savings are grossed-up by the avoided transmission and distribution energy losses (“line losses”) of 8 percent before the benefits are calculated.

On page 16 of Appendix E to Exhibit B-1 in the 2016 LTERP proceeding, FBC states:

System losses consist of the following: Losses in the transmission and distribution system; Losses due to wheeling through the BC Hydro system; Company use, and Unaccounted-for energy (meter inaccuracies and theft). Consistent with past practice FBC assumed a loss rate of eight percent of gross load, before the AMI [Advanced Metering Infrastructure] impact. AMI loss reduction is expected to further reduce the losses in the future by reducing theft from the system from illegal marijuana grow operations.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 67

13.1 Please provide an estimate of the annual load growth expected from the new cannabis production facilities, gross of any planned DSM programs, for 2019 to 2022.

**Response:**

Based on preliminary discussions with prospective cannabis production facilities, the annual load growth expected from the new cannabis production facilities, gross of any anticipated DSM activities, for 2019 to 2022 is estimated as follows:

Plan Year	Estimated Incremental Electric Load (MW)	Estimated Incremental Electric Load (GWh)	LTERP Forecast Gross Load (GWh)	% of gross load
2019	33	165	3,685	4.5%
2020	15	70	3,723	1.9%
2021	10	45	3,758	1.2%
2022	10	45	3,800	1.2%
<b>Total</b>	<b>68</b>	<b>325</b>	<b>14,967</b>	<b>2.2%</b>

The forecast represents an estimate of load from known prospective cannabis production facilities as of October 15, 2018 and assumes two additional cannabis facilities begin construction annually each plan year during 2019 to 2022. The 2016 LTERP forecast of gross load is before savings, including DSM.

13.1.1 Please provide an estimate of the annual electricity savings expected from DSM programs targeting cannabis production facilities.

**Response:**

Based on the load growth forecast assumed in the 2019-2022 DSM Plan, FBC is estimating approximately 7 GWh per year of electricity savings associated with DSM programs targeting cannabis production facilities for each year of the DSM Plan. The savings estimate includes both new construction and retrofit energy efficiency projects.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 68

13.2 Please discuss whether FBC anticipates a reduction in theft from illegal cannabis facilities due to the growth of legal cannabis production facilities.

**Response:**

It is difficult to determine whether electricity theft will be reduced due to the growth of legal cannabis production facilities. However, given that energy is one of the most significant cost inputs for cannabis production facilities, illicit producers may have an additional incentive to steal electricity as they attempt to compete with an emerging legal market for the production and consumption of cannabis.

13.2.1 If so, please discuss whether FBC intends to update its assumptions for line losses.

**Response:**

FBC is currently in the process of developing a losses study using AMI data to confirm or update the losses estimate. FBC does not plan to make forward-looking adjustments to the line losses estimate developed within this study.

As recognized in the preamble, system losses are comprised of technical losses in the transmission and distribution system, company use, losses due to wheeling through the BC Hydro system, and unaccounted for energy. Although unaccounted energy is a component of losses, there may be other offsetting changes with other components of the losses estimate.

13.2.2 Please discuss the extent to which FBC believes the new, legal, cannabis production facilities are additional to or a replacement of the illegal facilities in FBC's service area.

**Response:**

It is difficult to estimate the extent to which new, legal, cannabis production facilities are additional to or a replacement for existing illicit production facilities in FBC's service territory, however FBC notes that a number of suspected illicit production facilities appear to have ceased operation in the last number of months.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 69

1  
2  
3  
4 13.3 Please discuss whether FBC considers that any programs targeting new  
5 cannabis production facilities on a retrofit basis will be less effective than  
6 programs that incentivize uptake at the construction phase.

7  
8 **Response:**

9 Ideally, FBC would seek DSM program participation at the new construction phase rather than  
10 supporting retrofits at a later time. Reducing facility load requirements through DSM prior to  
11 construction reduces the size of site transformer and distribution infrastructure necessary to  
12 serve the customer. In the case of new cannabis facilities, the challenge from a DSM program  
13 perspective is that customers are valuing technological certainty of existing lighting, heating,  
14 ventilation, and air conditioning technologies over energy efficiency.

15 In particular, some customers are expressing that the known quality of high-intensity discharge  
16 (HID) grow lighting is more important than the potential energy savings that can be achieved by  
17 LED grow lights. For some customers, no degree of FBC incentive at the new construction  
18 phase would encourage them to install LED grow lights, until the LED grow light market  
19 matures. FBC new construction incentives target those customers who are open to emerging  
20 energy efficient lighting, heating, ventilation, and air conditioning technologies.

21 Customers who do not opt to install LED grow lights upon construction can hopefully be  
22 encouraged to retrofit to LED grow lights once the product matures. While the new construction  
23 benefits associated with reduced site transformer and distribution infrastructure cannot be  
24 achieved with retrofit projects, long-term infrastructure and generation benefits can still be  
25 realized at a later point.

26  
27  
28  
29 13.3.1 Please discuss whether FBC considers that it has sufficient lead time to  
30 target DSM programs that will be in place for the beginning of the  
31 facilities' operation.

32  
33 **Response:**

34 FBC considers that it has sufficient lead time to target DSM programs that will be in place for the  
35 beginning of the facility's operation. FBC does not need to develop new DSM programs to  
36 target cannabis production facilities as existing programs are suitable. To date, FBC Technical

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 70

Advisors have been successful in obtaining meetings to discuss FBC's DSM programs with the proposed facility's project team for each prospective cannabis facility proposed, within two to three weeks of project identification.

13.3.2 Please discuss whether there is any potential benefit to front-loading expenditures targeting new cannabis production facilities to ensure that programs are implemented at the construction phase.

**Response:**

Please refer to the response to BCUC IR 1.13.1.

13.4 Please discuss any evidence to indicate whether new cannabis production facilities in the FBC service area could not implement energy efficient grow lighting, ventilation and air conditioning in the absence of FBC incentives.

**Response:**

FBC has evidence that some cannabis production facilities are not pursuing energy efficient grow lighting even when offered FBC incentives. Thus, it follows that the same evidence suggests that some cannabis production facilities would also not pursue energy efficient grow lighting in the absence of FBC incentives.

As described in the response to BCUC IR 1.13.3, the concern from some new cannabis production facilities is that LED grow lights do not achieve the same quality of light spectrum necessary to optimize production as compared to high-intensity discharge (HID) grow lights. As a result, some customers are opting to install standard efficiency HID grow lights to get their facilities up and running and are waiting until LED grow lighting technologies mature.

FBC's incentives are in place to overcome the additional cost to install LED grow lights over HID grow lights. As of October 15, 2018, FBC Technical Advisors have approached 17 prospective warehouse and greenhouse cannabis facilities:

- Five of those warehouse facilities under permitting or construction are currently in FBC's Custom Program to obtain an incentive to install LED grow lighting;

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 71

- One greenhouse facility under construction (the largest proposed) has provided feedback to FBC that they are not going to install LED grow lighting at this time despite FBC providing a quote regarding potential incentives;
- 11 proposed warehouse and greenhouse facilities are currently in the process with FBC to obtain service and each have been informed of FBC DSM programs. None of these facilities have made a final decision regarding grow light technology. Several of these facilities have provided feedback that they are unlikely to pursue LED grow lights, particularly the proposed greenhouse facilities.

From prospective projects to date, early indications suggest that the FBC DSM incentive is encouraging some, but not all, customers to adopt LED grow lights.

While FBC has discussed other energy efficiency opportunities, including high efficiency heating, ventilation, and air conditioning, no such projects are currently enrolled in the Custom Program and FBC is not aware of any prospective facilities currently pursuing those measures.

13.4.1 Please discuss what assumptions that FBC has made with respect to free-ridership of programs targeting new cannabis production facilities in the FBC service area.

**Response:**

FBC has applied a 12 percent free-ridership rate to programs targeting new cannabis production facilities: the same free-ridership rate applied to other industrial programs. FBC believes that there is free ridership in most programs and thus applied the free ridership established in the last industrial program evaluation.

13.5 Please explain what assumptions FBC has made with regards to additional cannabis facilities in the FBC service area in the 2019 to 2022 period, beyond the 14 planned facilities.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 72

1    **Response:**

2    FBC made the following assumptions in the DSM Plan in regards to new cannabis facilities  
3    between 2019 to 2022:

- 4       • FBC assumed that 14 planned cannabis facilities would begin construction starting in  
5       2018, completing construction in 2019 and 2020; and
- 6       • Following 2018, FBC assumed that two new cannabis facilities would begin construction  
7       annually thereafter, completing a year later.

8  
9    As of October 15, 2018, FBC is aware of 17 planned cannabis facilities that are complete or  
10   currently under construction.

11  
12

13  
14                   13.5.1   Please explain if FBC has made any assumptions with respect to other  
15                   new large industrial customers, for example bitcoin mining facilities, in  
16                   its service area for this test period.

17

18   **Response:**

19   While FBC is aware of new block-chain mining facilities proposed and under construction in the  
20   FBC service territory, no additional DSM offerings to support those facilities have been  
21   proposed in the DSM Plan. Block-chain mining facilities receiving power from FBC are eligible  
22   for the Industrial Prescriptive and Custom Programs. FBC is not aware of any additional large  
23   customers (beyond cannabis production facilities) proposing to take service in the FBC service  
24   territory.

25  
26

27  
28                   13.5.1.1 Please discuss whether the industrial program area  
29                   expenditures contemplated in the 2019-2022 DSM Plan would  
30                   be sufficient to provide DSM program access to additional  
31                   cannabis facilities, bitcoin mining or other large new industrial  
32                   load coming online in the test period.

33

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 73

1    **Response:**

2    FBC planned industrial program area expenditures reflects a reasonable attempt to characterize  
3    both the potential number of new industrial facilities and associated cost-effective DSM  
4    opportunities that can be offered to those new customers. The proposed new industries are  
5    emerging markets where DSM opportunities are neither well-understood nor mature, thus, there  
6    exists a reasonable degree of uncertainty to the extent of industrial program area expenditures  
7    necessary to support efficient industrial load growth.

8    Should participation in FBC industrial program area offerings be less than forecast in the DSM  
9    plan, the DSM program could potentially accommodate DSM opportunities at additional  
10   cannabis facilities, block-chain mining or other large new industrial customers. If industrial load  
11   growth and program participation exceeds forecast, additional industrial program area  
12   expenditures may be necessary to support efficient load growth.

13

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 74

**14.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, pp. 10, 11**

**Industrial Program Area**

Table 5-1 of Appendix A to Exhibit B-1 shows Industrial Program Area expenditures and savings for 2019 to 2022.

On page 10 to 11 of Appendix A to Exhibit B-1, FBC states:

The Custom Program provides offers to encourage customers to identify, assess and implement measures that use energy for process-related activities. The program is administered jointly with FEI, providing customers with a one-stop program in the FBC service territory to evaluate and implement industrial energy efficiency projects.

14.1 Please provide the estimated total annual expenditures and energy savings in the industrial program area, excluding estimated expenditures due to the additional cannabis production facilities in the FBC service area.

**Response:**

The estimated total annual expenditures and energy savings in the Industrial Program Area, excluding estimated expenditures due to the additional cannabis production facilities, is as follows:

Plan Year	Estimated Annual Expenditures (2019 \$000s)	Estimated Annual Savings (GWh/year)
2019	\$777	2.9
2020	\$798	2.9
2021	\$819	3.0
2022	\$816	3.0

Even in the absence of supporting energy efficiency in new cannabis production facilities, the DSM Plan reflects additional planned expenditures to encourage additional industrial retrofits to existing customers by increasing both the energy study and capital incentives. While no new industrial programs are proposed, FBC proposes to increase incentive spend in existing offers by approximately \$0.3 million per year over 2018 planned expenditures. The planned expenditures increase is to encourage non-cannabis industrial energy efficiency projects and realize a greater portion of the market potential identified in the 2016 Conservation Potential Review.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 75

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33

14.1.1 Please compare these figures to the approved levels in the 2018 DSM Plan, and provide an explanation of any differences.

**Response:**

Please refer to the response to BCUC IR 1.14.1.

14.1.2 Please discuss whether FBC is planning activities to seek further opportunities to maintain or increase its DSM offerings to existing industrial customers.

**Response:**

Please refer to the response to BCUC IR 1.14.1.

14.2 Please discuss whether the Custom Program includes fuel switching, given the joint administration with FEI.

**Response:**

The Custom Program does not include fuel switching. Energy studies and capital incentives provided are limited to identifying and implementing energy efficiency opportunities. Both electric and natural gas energy efficiency opportunities can be pursued together, albeit funded by FBC and FEI separately for their respective energy savings.

FBC considers that Fuel switching opportunities cannot be pursued in the Custom Program, because such measures are included within the description of prescribed electrification undertakings in section 4 of the *Greenhouse Gas Reduction (Clean Energy) Regulation* and therefore require separate application under section 18 of the *Clean Energy Act*.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 76

**15.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, p. 13**

**2018 DSM Proceeding, Exhibit B-2, Appendix A, pp. A5, A14**

**Conservation Education and Outreach**

On page 13 of Appendix A to Exhibit B-1, FBC states with respect to the Residential Customer Engagement Tool:

Industry research on similar tools indicate electric savings for this type of initiative are approximately 2% of total participant electric consumption. However, since these savings are based on behavior changes and there is uncertainty on their relative magnitude, they cannot be effectively forecast at this time and have not been included in this DSM Plan. Once savings are realized, they will be reported in FBC's annual DSM reports to the British Columbia Utilities Commission.

Table 6-1 of Appendix A to Exhibit B-1 shows forecasted Conservation Education and Outreach expenditures for 2019 to 2022.

Table A2-1 of Exhibit B-2 in the 2018 DSM Proceeding indicated forecasted energy savings of 240 MWh and expenditures of \$165,000 for the Residential Customer Engagement Tool.

Table A5-1 of Exhibit B-2 in the 2018 DSM Proceeding shows supporting initiative expenditures, including a line item for "Conservation, Education and Outreach" of \$200,000.

15.1 Please clarify whether the expenditures in the 2018 DSM Plan classified under the line item "Conservation Education and Outreach" have been reallocated to individual programs in the 2019-2022 DSM Plan.

**Response:**

Conservation Education and Outreach activities have not been reallocated to individual programs. The expenditures in the 2018 DSM Plan classified under the line item Conservation Education and Outreach were included in Supporting Initiatives. In the 2019-2022 DSM Plan, Conservation Education and Outreach was assigned its own expenditure category organized into the following programs to provide a better representation of customer outreach and to align with the FEI 2019-2022 DSM Plan.

- Residential Education program;
- Residential Customer Engagement Tool;

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 77

- Commercial Education program; and
- School Education program.

15.1.1 If not confirmed, please explain the increase in expenditure on the Residential Customer Engagement Tool and education programs for the 2019-2022 DSM Plan.

**Response:**

In 2018, the expenditures for the Residential Customer Engagement Tool (CET) tool were \$165 thousand and forecast under the Residential Program area. At the time of the 2018 DSM Plan filing, development had just begun and full implementation costs were unknown. As referred to on page 12, Table 6-1 of the 2019-22 DSM Plan (Exhibit B-1) the Residential CET shows an expenditure of \$281 thousand in 2019 and \$203 thousand in 2020. This variance is attributed to realizing higher expenditures in 2019 associated with one-time portal development costs, which will not be incurred in subsequent years. From 2020 to 2022, FBC forecasts that the program expenditures will grow approximately 30 percent per year due to program uptake.

In 2018, the expenditures for CEO initiatives were \$200 thousand and forecast under the Supporting Initiatives area. In 2019, the forecast changed to \$284 thousand and CEO was moved from Supporting Initiatives to its own program area. The increase of \$84 thousand is in relation to an expansion of multiple initiatives including small business engagement in the Commercial Education program, development of FBC's school program to include Grade 11 and 12 curriculum and extending FBC's direct community engagement for customer education through municipalities.

15.1.1.1 Please explain the reason for the pattern of annual expenditures in the Residential Customer Engagement Tool between 2019 and 2022.

**Response:**

Please refer to the response to BCUC IR 1 15.1.1.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 78

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35

15.2 Please provide details of the lower and upper bound of savings from similar tools based upon FBC’s review of industry research.

**Response:**

An industry review conducted by E Source (an energy industry analytics consultancy) found that the range of savings falls within one to three percent.

15.2.1 Please discuss if FBC believes that using a conservative low estimate of savings from the Residential Customer Engagement Tool could be appropriate for DSM plans.

**Response:**

The Residential CET initiative is currently still in the planning stage, and therefore FBC believes that not enough data is available to estimate savings for the DSM Plan. FBC will report any savings from the Residential CET as part of its DSM annual reporting for the year those savings are realized.

15.3 Please explain why FBC provided an estimate of savings from the Residential Customer Engagement Tool in 2018 but has forecasted no savings for the 2019-2022 DSM Plan.

**Response:**

FBC did not include savings specific to the Residential CET in the 2018 DSM Plan or the 2019-2022 DSM Plan because the initiative is in the planning stage, and not enough data is available to estimate those savings. The savings values indicated in the 2018 DSM Plan of 240 MWh were for in-home display units (IHDs) and not the CET. Although FBC originally included IHDs in the 2018 DSM Plan, due to their low relative impact and limited market applicability, FBC has decided not to include estimated savings in this regard in the 2019-2022 DSM Plan.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 79

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27

15.3.1 Please provide an estimate of savings from FBC’s customer engagement tools that will be realized in 2018, and the estimated TRC benefit/cost ratio.

**Response:**

FBC has not forecast any savings to be realized in 2018 for customer engagement tools (including the customer engagement portals, home energy reports and in-home displays) and therefore cannot calculate an estimated TRC benefit/cost ratio. The customer engagement portal and home energy report are not planned to launch until late 2019 and therefore no savings will materialize in 2018. Furthermore, due to a number of circumstances, FBC does not anticipate claiming savings for any in-home displays in 2018.

15.3.1.1 Please discuss whether FBC believes that once savings are realized from customer engagement tools, that these can be used as a proxy savings for future years.

**Response:**

The Residential CET initiative is in the planning stage, and the corresponding evaluation plan is being developed in conjunction with this planning and is therefore not yet confirmed. Once the evaluation plan is developed and confirmed and the savings are being assessed, FBC will determine whether the savings values can be used as a proxy for future years.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 80

**16.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, pp. 14 to 16**

**Supporting Initiatives**

Table 4-1 of Appendix A to Exhibit B-1 shows expenditures on Supporting Initiatives for 2019 to 2022.

On page 14 of Appendix A to Exhibit B-1, FBC describes the Commercial Energy Specialist and Community Energy Specialist programs.

On pages 15 and 16 of Appendix A to Exhibit B-1, FBC describes the DSM Tracking System.

16.1 Please explain the reasons for funding positions within commercial/ community organizations, versus funding in-house FBC positions to support the same activities.

**Response:**

The primary reason for funding positions with commercial/community organizations, versus funding in-house FBC positions to support the same activities, is effectiveness. For commercial organizations, funding Commercial Energy Specialist positions within large commercial organizations enables FBC to influence areas of those organizations to pursue energy efficiency projects that in-house FBC positions cannot influence easily or effectively. Embedding the Energy Specialist within the organization allows them greater insight into the organization's energy efficiency project opportunities than an in-house FBC position would generate. Having the organization take ownership of this employee position, invest some of its own funds into the position and formally agree to the terms of the work also provides greater up front buy-in from the organization to pursue energy efficiency projects than they would otherwise consider without the Energy Specialist in place.

For community organizations, FBC and other utilities have found that supporting community-based positions increases attributable energy savings, the values of the rebates that the community receives, and improves relationships for on-going collaboration. Most communities do not have the capacity to dedicate a full-time energy efficiency and conservation champion. Therefore, support for internal positions helps build community/organizational capacity and long-term cultural and behavioural change. "Embedded" employees better understand internal needs and culture, which results in better recommendations that are more likely to be well-received and acted upon. Increased capacity also provides opportunities to seek other funding to further support energy efficiency, which in turn enhances the position's efficacy.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 81

16.1.1 Please confirm if the positions funded are fixed term to align with the period covered by the 2019-2022 DSM Plan.

**Response:**

The positions are fixed term in that they are reviewed for renewal after a one-year term. However, the funding relationship is variable as FBC enters into these funding relationships with organizations with the intent to continue funding until there are not enough energy efficiency related projects remaining to warrant a full time position. The overall time frame of this funding relationship varies depending on the organization. FBC renews agreements based on an assessment of past performance and the project plan for the next funding year. If it is identified that opportunities are exhausted or the organization is not able to meet its targets, the agreements may be re-written or not renewed.

16.1.2 Please discuss how FBC will monitor the effectiveness and review the funding requirements of this program.

**Response:**

FBC will continue to fund these positions as long as the Energy Specialists can show that they are producing results in line with these programs' key priorities, and have future energy efficiency related projects to work on. The Energy Specialists are accountable to this funding by providing a report every three months detailing how they have progressed on the energy efficiency related projects in their project plan. Commercial Energy Specialists are evaluated based on the total DSM program incentive dollars that they are able to qualify their organization for and on the electricity savings they are able to attribute to their other energy efficiency projects. Community Energy Specialists are evaluated based on how they have performed to their work plan. Prior to renewing these one-year agreements, Energy Specialists are asked to provide a project plan or work plan for the following year. FBC reviews the Energy Specialists' quarterly reports and project/work plan to determine whether continued funding is warranted. If it is apparent that there is little to no opportunity to implement further energy efficiency related projects at an organization then FBC would discontinue funding for that Energy Specialist position.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 82

16.2 Please explain the reason for the ramp up in expenditures in the Trade Ally Network program in the 2019-2022 DSM Plan.

**Response:**

FBC plans to expand the program to engage other key stakeholders who influence energy efficient decision making – such as manufacturers, distributors, and commercial partners. Expanding the program will provide these stakeholders with opportunities to receive support for education and training, as well as access to co-op advertising funding for the promotion and installation of high efficiency products.

16.3 Please describe how FBC intends to attribute savings from codes and standards in its annual DSM reports. Please specifically address how savings related to the BC Energy Step Code are distinguished with savings in FBC's New Home Program.

**Response:**

FBC notes the DSM Regulation adequacy requirement that mandates the minimum codes and standards expenditure is targeted at providing resources, and does not require energy savings to be realized.

As such FBC has not attributed any anticipated energy savings from its Codes and Standards expenditures in the 2019-2022 DSM Plan. FBC understands that this approach is consistent with BC Hydro's approach on a planning basis. FBC supports codes and standards policy development and research through in-kind and financial co-funding arrangements. FBC has not estimated the energy savings achieved by the adoption of government policy instruments that result in energy conservation and has not attributed energy savings of those instruments.

Historically, FBC has not attributed savings from codes and standards in its annual DSM reports, however, FBC is aware that FEI has, on occasion, claimed such savings in its annual reports. However, FEI does not forecast attribution of codes and standards savings in DSM plans as they can vary. If FBC is able to demonstrate how DSM programs support the adoption of a code or standard, FBC believes it could attribute and report these savings in its annual reporting.

FBC's New Home program has been revised based on the BC Energy Step Code, thus the related savings are one and the same. FBC will claim savings for homes that receive incentives for construction to higher steps than the baseline BC building code, under the New Home

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 83

1 program. When the Province updates the BC building code, FBC will revise incentives  
2 accordingly.

3 FBC may also attribute savings from the BC Energy Step Code if FBC can show that its support  
4 (including incentives) for the BC Energy Step Code leads to the adoption, or advancement, of  
5 higher steps in the building code.

6  
7  
8  
9 16.4 Please discuss whether FBC believes that the implementation of the DSM  
10 Tracking System will result in cost savings or increased energy savings from its  
11 DSM programs.

12  
13 **Response:**

14 FBC believes that the implementation of the new DSM Tracking system will result in cost  
15 savings for the following reasons: an improved ability to operate joint programs by sharing a  
16 platform, an enhanced online application form for electric customers, improved reporting via  
17 integrated dashboards, and a powerful communications management system.

18 FBC notes that additional benefits from the new tracking system include:

- 19 • reduction of manual rebate application transcription;  
20 • faster rebate application processing;  
21 • improved feedback for customers on the status of their rebate; and  
22 • enhanced duplicate application mitigation.

23  
24 FBC and FEI expect to realize the following benefits from the ability to jointly operate programs  
25 using the new system:

- 26 • Programs, measures, and other DSM information will only need to be updated in a single  
27 system, rather than in both systems;  
28 • The new joint rebate portal will streamline the application process, creating efficiencies  
29 for internal users as well as customers;  
30 • Program reporting will be holistic and more efficient. Rather than creating two separate  
31 reports to obtain the same information, a single report will now contain all data required;

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 84

- 1       • New users will only need to be trained on a single system; and
- 2       • Program representatives will have a single source of information while assisting
- 3       customers with rebate inquiries.

4

5 FBC does not believe it will see an increase in energy savings as a direct result of the new DSM

6 Tracking System, however, the system will help to accommodate the proposed increase in

7 applications processed per year, indirectly supporting the energy savings realized.

8

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 85

**17.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, p. 26; Appendix A, pp. 18, 19; Appendix D, p. 15**

**Portfolio Expenditures**

On page 26 of Exhibit B-1, FBC states:

The total proposed expenditure for EM&V [Evaluation, Monitoring and Verification] activities to be conducted over the 2019-2022 DSM Plan period is approximately \$1.7 million, or four percent of the DSM expenditure portfolio.

On page 15 of Appendix D to Exhibit B-1, FBC states:

Industry practice for budget spending on EM&V activities appears to range from just below 2 percent to 3 percent of spending on overall energy efficiency and conservation program budgets. The Companies examined the results of recent industry surveys on evaluation expenditures. Survey results obtained from E Source, an energy efficiency consultancy serving gas and electric utilities throughout North America, indicate that for utilities with DSM expenditures of between US\$ 20 and 55 Million, DSM budgets are between 2 percent and 3 percent, and that the proportion of DSM expenditures on evaluation decreases as the size of the portfolio increases. Utilities with expenditures greater than \$US 55 million tend to spend just under 2 percent on evaluation. The Consortium for Energy Efficiency (CEE) found that in 2014 US and Canadian natural gas utilities spent about 2 percent of their overall DSM budgets on evaluation and in 2015 this value dropped to 1 percent for Canadian Utilities.

17.1 Please explain why FBC's expenditure on EM&V activities is higher than the "industry practice" described in Appendix D.

**Response:**

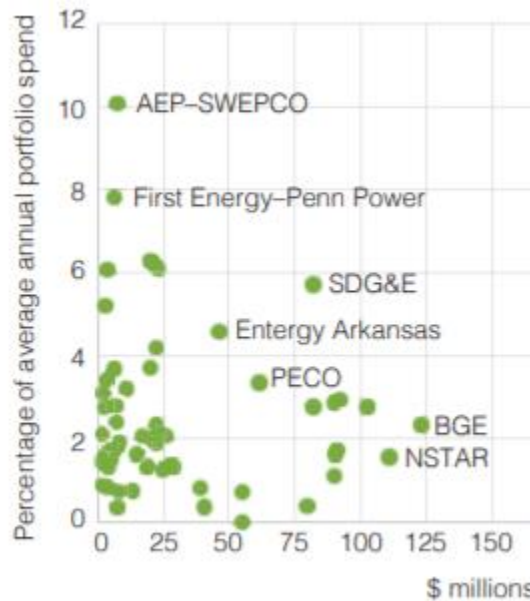
The Evaluation expenditure range of two to three percent, referenced in the preamble, was based on a DSM portfolio expenditure of US\$20-50 million per annum, and reflects economies of scale (i.e., utilities with the largest portfolios spend a smaller percentage on evaluation) not available to FBC.

The same source (E Source DSM Insights 2015)<sup>4</sup> provided figure #3 below, that indicates that although the majority of Evaluation spending were clustered up to four percent, there were also a number of programs where the Evaluation spend ranged from five to ten percent of the DSM portfolio spend.

---

<sup>4</sup> E Source Poster: How much do Utilities Spend on Evaluation? 2015.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 86



1

2 The Company believes its proposed \$1.7 million EM&V budget, or four percent of the \$43.3  
3 million 2019-2022 DSM Plan portfolio expenditure, is appropriate.

4

5

6

7 17.1.1 Please discuss whether FBC expects to realize other benefits as a  
8 result of higher spending on EM&V activities.

9

10 **Response:**

11 FBC believes its proposed EM&V budget and planned activities are necessary and sufficient to  
12 achieve the Evaluation Objectives outlined in Section 2.2 of Appendix D of the Application.

13

14

15

16 17.2 Please discuss what actions FBC plans to take to improve the efficiency of its  
17 EM&V spending, as measured by the percentage of EM&V expenditures  
18 compared to the DSM portfolio expenditures.

19

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 87

1 **Response:**

2 FBC has undertaken considerable efforts to improve the efficiency of its EM&V spending as  
3 evidenced in Table 8-2 of Appendix A. To the extent possible, FBC participates in shared  
4 Evaluations, primarily with FEI, and is paying \$195 thousand as its prorated share of the \$1,626  
5 thousand total cost of the joint evaluations. In addition, FBC has proposed \$245 thousand of  
6 solo evaluation work, and the requisite staffing costs to undertake the planned EM&V activities.

7  
8

9

10

11

12 With respect to the Innovative Technologies Program, on pages 18 to 19 of Appendix A,  
13 FBC states:

14 FBC supports feasibility studies, field studies, and pilots to validate customer  
15 acceptance and energy savings of innovative equipment and systems.  
16 Technologies that have potential are incorporated into DSM programs.

17 17.3 Please discuss how FBC determined the appropriate level of expenditures on the  
18 Innovative Technologies Program.

19

20 **Response:**

21 Expenditures for the Innovative Technology program area are based on an assessment of  
22 potential innovative technologies to be evaluated, as well as other jurisdictional benchmarks.  
23 An industry review conducted by E Source (an energy industry analytics consultancy) found that  
24 other utilities allocate 1 to 4.5 percent of their DSM budget for emerging technology initiatives.  
25 FBC's budget for Innovative Technologies of 1.3 percent of the overall DSM Plan falls within  
26 that range.

27

28

29

30 17.4 Please provide a summary of any technologies that have been incorporated into  
31 FBC's DSM programs in the last 5 years as a result of FBC's work on innovative  
32 technologies.

33



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 88

1    **Response:**

2    Innovative Technologies was not a specific funding area until the 2018 DSM Plan, so there are  
3    only two examples to provide. When partnership opportunities to undertake field studies arose,  
4    FBC participated in the initiatives. FBC proposes to expand support for innovative technologies  
5    in the 2019-2022 DSM Plan.

6    Over 2013-14, FBC partnered with FEI to conduct an ice rink resurfacing pilot to validate energy  
7    savings claims, assess customer acceptance rates, and identify technical issues associated  
8    with the installation and operation of vortex de-aerator technology for ice re-surfacing in BC ice  
9    arenas. The pilot findings allowed FBC to create an express custom rebate for vortex de-  
10   aerators.

11   In 2016-17 FBC managed a field study, with major funding from NRCan, MEM and BC Hydro,  
12   on the performance of heat pump water heaters (HPWH) designed to mitigate the impact on  
13   home heating systems. Based on the successful findings of this field study, split system  
14   HPWHs have become eligible for FBC incentives.

15

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 89

**18.0 Reference: PROGRAM LEVEL ISSUES**

**Exhibit B-1, Appendix A, p. 15; Appendix A-1, pp. 3, 5, 6, 17**

**Demand Response Pilot (DR pilot)**

On page 15 of Appendix A to Exhibit B-1, FBC states:

Appendix A-1 contains the Kelowna area DR [Demand Response] potential assessment report. The second phase of work will simulate the customers' DR potential against a backdrop of the past 3-year system load profile for the Kelowna area. The final phase of work, subject to RFP, would be to proceed with a Kelowna area DR pilot project to validate proof of concept. Table 9-1 outlines FBC planned pilot study over 2019-2022 to assess the ability of DR to defer capital infrastructure investment in the electric system. The DR pilot anticipates testing both summer and winter potential over 2019-20. The initial expenditures to implement the Kelowna area DR pilot project include customer recruitment, demand control apparatus, licensing and configuration costs. The additional costs (\$125 thousand per year) are FBC's estimate to sustain the DR capacity.

Page 3 of Appendix A-1 to Exhibit B-1 states:

Enbala estimates that a demand response program would provide a combined utility benefit of \$172/kW-year from Avoided Transmission, Distribution and Generation costs.

...

Enbala recommends that FortisBC proceed with an ICI Demand Response Pilot targeting 1.75 MW of capacity per year, and, at a minimum, maintain this level of DR capacity for a period of 3 years.

Page 5 of Appendix A-1 to Exhibit B-1 states:

The forecast shown here is based on historical load drivers expected in the Kelowna area and does not include proposals for cannabis facilities or block-chain which may increase the load growth significantly.

Page 17 of Appendix A-1 to Exhibit B-1 states:

FortisBC is experiencing large potential uncertainty in load growth in the Kelowna region due to emergent cannabis production facilities and cryptocurrency miners. Given this uncertainty, it is difficult for FBC to be certain that even 11 MVA of DR as identified in this study will be sufficient to avoid a capital upgrade. That said, the Kelowna area constraint can still serve as a specific example of how to quantify the benefit of deferring a capital upgrade.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 90

FBC projects that the Kelowna area will require an additional transformer to be operational by Jan 1, 2023 to secure reliable service for the Kelowna area and meet N-1 contingency criterion. Under a modest loadgrowth scenario FBC could achieve the same outcome by aggregating large institutional, commercial and industrial (ICI) customers in the Kelowna area to provide a sufficient load relief to defer the costly upgrade at Lee Terminal or DG Bell.

A new terminal transformer (and related balance-of-plant expenditures) is anticipated to cost \$17 million and take 3 years to plan and build. Therefore, anticipating the load to exceed the reliability limit in summer 2023, FBC is planning to begin the substation upgrade project in 2020.

18.1 Please confirm that FBC does not expect to defer upgrades at Lee Terminal or DG Bell as a result the DR pilot.

**Response:**

Confirmed. The DR pilot is a proof-of-concept initiative and the magnitude of the proposed target of 1.75 MW capacity is insufficient to defer the aforementioned upgrades.

18.1.1 If confirmed, please explain why FBC did not select a location for the DR pilot where there could have been sufficient lead time for the potential deferral of capacity upgrades, if successful.

**Response:**

FBC selected the Kelowna area for the DR pilot because it has the greatest concentration of customers in the FBC service territory and is experiencing significant growth.

Please refer to the response to BCUC IR 1.18.3 which identifies an additional capacity upgrade required in the Kelowna area within the 20-year 2016 LTERP planning horizon that may have the potential to be deferred due to a successful DR program.

18.2 Please discuss the criteria that FBC will be using to measure the success of the DR pilot.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 91

1 **Response:**

2 The purpose of the DR pilot is to gain experience with DR technology and an understanding of  
3 its capabilities and associated benefits. The criteria that FBC will be using to measure the  
4 success of the DR pilot include:

- 5 • evaluating the magnitude of DR capacity available (compared to the potential estimate);
- 6 • operational characteristics such as dispatchability, reliability and timeliness of the DR  
7 event responses;
- 8 • customer engagement and satisfaction including retention;
- 9 • DR potential scalability;
- 10 • reliability as a resource option;
- 11 • DR use-cases, for example infrastructure deferral, generation deferral, wholesale market  
12 price mitigation; and
- 13 • assessing cost effectiveness.

14  
15

16  
17 18.2.1 Please outline the potential next steps if the DR pilot Phase II and the  
18 proof of concept phase are considered successful by FBC.  
19

20 **Response:**

21 If successful, the DR pilot findings will inform a business case, including use-cases and benefits,  
22 to determine the potential for cost-effective DR.

23  
24

25  
26 18.2.1.1 Please explain if the results of the DR pilot could potentially  
27 inform the resource options considered as part of the next  
28 LTERP.  
29

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 92

**Response:**

If the DR pilot and the proof of concept phase are considered successful by FBC, as discussed in the response to BCUC IR 1.18.2.1, they could potentially inform the resource options considered as part of the next LTERP.

18.3 Please outline other future capacity upgrades on the FBC system that, if the DR pilot is successful, there is sufficient lead time for DR to be considered as an option to defer upgrades.

**Response:**

The following table, filed in response to BCSEA IR 2.9.1 in the 2017 Cost of Service Analysis (COSA) and Rate Design Application (RDA) proceeding, provides the currently identified projects driven by ongoing peak load growth in the Kelowna area over the 20-year planning horizon of the 2016 LTERP.

**Table 18.3: Currently identified FBC projects in the Kelowna area within the Planning Horizon**

Name	Estimated Cost (million)	Classification	In-service Date
Kelowna Bulk Transformer Addition	\$ 17.0 million	Transmission	December 2022
Sexsmith Substation - Second Transformer Addition	\$5.0 million	Distribution	December 2020
DG Bell Terminal - Second Transformer Addition	\$5.0 million	Distribution	December 2025

Depending on the outcome of the DR pilot, DR may be a potential option to defer the addition of a second distribution transformer at DG Bell Terminal. The planned in-service date of December 2025 for this project allows adequate time to evaluate the DR pilot and, if the pilot results were favorable, potentially build sufficient DR capacity to defer the project later into the planning horizon.

For clarity, the Enbala report used the Kelowna bulk transformer deferral project only as an example of how to quantify the benefits associated with deferring capital upgrades as a result of a DR project. The purpose of the DR pilot is to gain an understanding of the technology and assess whether it is a feasible option to consider in the future.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 93

18.3.1 Please discuss the extent to which the quantified benefits from the DR pilot can be used to extrapolate the benefits of deferring other capacity upgrades.

**Response:**

The purpose of the DR pilot is to gain experience with DR technology and an understanding of its capabilities and associated benefits. At this time, it is difficult to determine whether data collected from the pilot can be extrapolated to quantify the benefits of deferring other capacity upgrades.

DSM savings in any one location can be greater or less than anticipated as a result of factors influencing customer participation including demographics, socio-economics, or concentrations of customer segments. In terms of Demand Response, there are at least two dimensions of customer participation to consider:

1. The willingness of customers to participate in a DR program within areas of the system where peak load growth is driving the need for infrastructure; and
2. The number of events, timing of events, and duration of events specific participating DR customers will tolerate.

In addition to customers' propensity to participate, other considerations may limit DR offerings such as compatibility with system components of varying age, technologies or methods used to dispatch the DR, and interfaces with system control systems such as SCADA and system dispatchers.

Furthermore, there may be cases where a large new customer is added to the system or there is an area of concentrated growth in one particular service area greater than expected which outpace the capabilities of DR that results in the need for infrastructure requirements based on specific locational conditions.

18.4 Please discuss whether FBC considers that the utility benefits calculated in the DR pilot could be used to provide a more accurate representation of avoided capacity costs for DSM cost-effectiveness testing.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 94

1    **Response:**

2    At this time, it is premature to ascertain whether data collected from the pilot could be used to  
3    provide a more accurate representation of avoided capacity costs for DSM cost-effectiveness  
4    testing.

5    FBC considers there are two categories of avoided capacity cost values: System Capacity  
6    which is associated with the marginal cost of generation capacity; and Network Capacity which  
7    is the DCE value associated with network expansion or reinforcement. The DR benefits are  
8    anticipated to focus on relatively short-term deferment of localized network reinforcement,  
9    whereas FBC considers the DCE value currently used reflects the avoided cost of long run  
10   system-wide capacity growth projects.

11

12

13

14           18.5    Please explain why the DR capacity needs to be sustained for 3 years.

15

16    **Response:**

17    The DR program is required to be sustained over a multi-year period to achieve a more  
18    complete understanding of how participating DR customers receive the program, to allow FBC  
19    system operators to gain familiarity on how to dispatch DR events, and to assess the impact of  
20    the DR resource within FBC's service territory.

21    The following are examples of aspects relating to DR performance that may vary over the three-  
22    year period:

23           •   The persistence of savings realized during a DR event is likely to be related to the  
24           frequency, timing, and duration of DR events;

25           •   The need for DR resources may vary through the year depending on the seasonal  
26           system coincident peak, and/or peak loads on specific distribution equipment, which can  
27           vary independently; and

28           •   FBC anticipates that load 'rebound' will occur when homes and/or businesses use  
29           energy to recover from the effects of the DR event. FBC is interested in understanding  
30           the characteristics and consistency of the rebound over time.

31

32

33

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 95

18.6 Please discuss the implications of the forecast not including proposals for cannabis facilities or block-chain, with respect the outcomes of the DR pilot.

**Response:**

The DR pilot itself is not directly impacted by the DR study forecast or what potential loads were not considered in the forecast since the pilot will consider loads available for DR at the time of the pilot, not the forecast. However, as stated in the reference given in the preamble, to the extent that actual loads materially differ from forecast loads, required capital upgrades may or may not be able to be avoided through DR. As such, it is possible there could be an impact on the business case to proceed with a full DR program or not.

On the other hand, new loads may also result in higher amounts of DR available. For a facility to be a good candidate for demand response, it is necessary that some of the facility's major electric loads can be displaced or re-scheduled. At present, there is limited utility experience in determining DR potential for cannabis facilities given the optimal lighting, heating, ventilation and air conditioning conditions that must be maintained to encourage proper product cultivation. If suitable cannabis facilities are interested, they will be considered for the DR pilot, so that FBC can gain experience with this emerging customer segment.

FBC believes DR is relevant to block-chain mining facilities, as they are expected to be responsive to economic stimulus. However, at this time there are no block-chain mining facilities in the FBC service area eligible to participate in the DR pilot. If suitable block-chain facilities are interested they will be considered for the DR pilot, and if not eligible, future phases may include them.

18.6.1 Please discuss FBC's understanding of the feasibility of cannabis production facilities participating in future DR programs.

**Response:**

Please refer to the response to BCUC IR 1.18.6.

18.6.1.1 Please discuss if new cannabis production facilities in FBC's service area will be considered for inclusion in Phase II of the DR pilot.



FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 96

**Response:**

Please refer to the response to BCUC IR 1.18.6.

Page 6 of Appendix A-1 to Exhibit B-1 states:

Enbala views Demand Response as the beginning of a continuum towards implementing a Virtual Power Plant (VPP) product that can use distributed energy resources to meet multiple utility goals. Load flexibility can be harnessed in a VPP for fast bi-directional control to balance energy flows in real time, which can further be expanded to grid ancillary services such as frequency regulation. Finally, voltage and reactive power flows can be managed to mitigate the localized impact to distribution networks from resources such as roof-top solar PV.

18.7 Please discuss whether FBC intends to test the potential feasibility of any aspects of the “Virtual Power Plant” as part of the DR pilot.

**Response:**

At this time, a full-fledged “Virtual Power Plant” (VPP) is not explicitly in the scope of work, but it is anticipated that some form of DR dispatch, likely via an internet portal, will be included in the DR Pilot.

FBC may consider the option of testing aspects of a VPP within the DR pilot after further discussion with the successful proponent, but the primary focus is to gain experience with DR technology as a first step. FBC’s decision to include aspects of a VPP will be dependent on a variety of considerations such as, but not limited to, the costs of implementing VPP software including supporting IT systems, capability as well as costs of integrating more advanced power management technology with FBC’s system, and ultimately DR program uptake by FBC’s customers.

FortisBC Inc. (FBC or the Company) 2019-2022 Demand Side Management (DSM) Expenditures Application (the Application)	Submission Date: October 30, 2018
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 97

1 Page 9 of Appendix A-1 to Exhibit B-1 states:

2 The Kelowna area is a dual peaking system, however the winter reliability load  
3 limit (400 MW) is significantly larger than the summer reliability limit as shown in  
4 Figure 5. This is due to the higher capacity of the transformers at lower  
5 temperatures.

6 18.8 Please discuss whether in theory, the summer reliability load limit could be lower  
7 than the levels modelled in Appendix A-1 due to extreme high temperatures.

8

9 **Response:**

10 The summer reliability limit is based on the nameplate ratings of terminal transformers in the  
11 Kelowna area. The nameplate rating of each transformer documents the design capacity given  
12 expected summer ambient temperatures in Kelowna. As such, the summer reliability load limit  
13 is appropriate.



FBC DSM Program Area	Customer Group (current and potential)	Barrier	Strategy
Residential	Existing homes - In particular, Senior citizens and rural customers are a hard to reach market.	Customers may not be aware of FBC's energy efficiency programs and behaviour change initiatives	Communications strategy with FortisBC channels - web, bill inserts, e-news and paid and earned media
			A residential segmentation framework will be developed in 2019, with the intent to invest more in targeted media buys, improved customer engagement, and increased C&EM program awareness and participation by identifying potential barriers (not yet identified) and motivators for current and future customers
		Certain demographics may not adapt to online information and application process	Collaborating with partners, including continued support of provincial government
			The Residential Customer Engagement Tool will provide a marketing platform and engage customers through home energy reports
	New home	Customers find it difficult to find qualified contractors	Ensure paper applications or phone support continue to be made available
			Expansion of TAN network and developing Program Registered contractor directories for HVAC equipment, insulators and energy advisors; Continue to educate customers re: what to look for in a contractor/quality install
		Builders are resistant to change when focused on lowest cost alternatives	Share information about benefits of high performance homes
			Rebates levels designed to motivate builders to build to higher steps
Commercial & Industrial (C&I)	Across the sector	Navigating through FBC DSM Programs	Offer Energy Specialist resources for commercial customers.
		Customers do not have resources to pursue FBC DSM Program offers	Offer Strategic Energy Management support for industrial customers where applicable. Support through FBC Technical Advisor, Account Manager and Energy Efficiency Representatives.
	Small and medium size businesses (C&I)	Customers lack basic understanding of energy efficiency and FBC rebate programs	Increased prescriptive program offers, upstream incentives and increased TAN network
			Continue to provide behaviour change funding for commercial customers to run internal campaigns to support energy efficiency training and employee initiatives
		Customers may not be eligible for Performance Programs (customized offers)	Small businesses are a target audience within the Commercial Education Program and are reached individually through our small business engagement initiatives
			Yearly partnership continues with Business Improvement Association BC engaging with small businesses through a yearly, province-wide Turn Down your Heat week campaign
	Industrial customers	Significant competition for investment capital for energy efficiency projects	Increased prescriptive program offers and upstream incentives
		Economic uncertainty associated energy intensive, trade-exposed industries	Calibrate incentives for industrial measures to cover a larger percentage of incremental cost
	Cannabis customers	Resistant to exploring energy efficiency due to short timelines for new construction to get into cannabis market	Utilize key account and marketing messaging to emphasize the cost savings associated with energy efficiency projects to energy intensive, trade-exposed industries
		Uncertainty about quality of LED grow lights	Have Technical Advisors approach each new cannabis production facility to discuss LED grow light opportunities. If customer isn't interested during construction, develop database of facilities to approach post-construction as LED grow light technology becomes more mature.
Low Income	Social housing providers serving low income residents	Participants lack expertise (identify, plan and execute project) to evaluate options and proposals, plan upgrades and ongoing management of the energy efficiency retrofit process	Align FBC LED grow light incentives with Design Light Consortium product categories to support quality installation. Develop case studies of successful LED grow light implementation to encourage adoption over time.
		Funding limitations to hiring of professional engineers (consequences: poor quality of project assessment, poor business case for upgrade, upgrade may not address issues and result into savings).	The Social Housing Support program includes funding for energy studies and implementation support so that professional engineers can be hired to assist social housing providers with energy efficiency retrofit projects.
	Low income residents	A very diverse customer group with wide ranging barriers.	Conducting a segmentation analysis of low income population to (1) better understand the journey the low income population takes when it comes to learning about and deciding whether to participate in energy efficiency programs, (2) identify regional differences that may exist, and (3) improve communication and marketing to the different segments of the low income population.
		Lack of awareness of FBC DSM Programs in general or lack of understanding of the offer for low income participants	Expansion of marketing tactics beyond the traditional forms of distribution of program information (e.g. direct mail, radio ads) to include targeted communications through community organizations (e.g. fostering relationships with social housing providers, government assistance programs, MLA offices and community social service agencies, dedicated outreach resources for one-to-one promotions)
			Continued stakeholder engagement to assess which barriers remain, what motivations to cater to, etc.
		Limited ability to pay for high efficiency equipment or other major energy upgrades	Direct install programs provide income-qualified customers with free energy savings equipment and installation
		Self-perception of not being low income and therefore not being eligible for programs	The target group is not referred to as low income in program marketing and communications. Instead "income-qualified" is used.